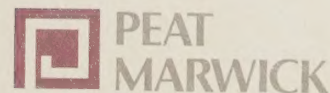


URBAN/MUNICIPAL

CA 3 ON HW A64
85 I571



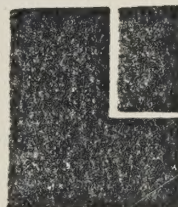
**The Regional Municipality of Hamilton-Wentworth
The Corporation of the City of Hamilton
The Hamilton Public Library Board**

**Information Systems Requirements Study
and**

**Review of
Related Technical and Management Issues**

December 1985

Final Report



HAMILTON PUBLIC LIBRARY



3 2022 21292295 5



Digitized by the Internet Archive
in 2023 with funding from
Hamilton Public Library

-925378

THE FINAL REPORT FOR
THE HAMILTON GOVERNMENT GROUP

Comprised of
THE REGIONAL MUNICIPALITY OF
HAMILTON-WENTWORTH
THE CORPORATION OF
THE CITY OF HAMILTON

and
THE HAMILTON PUBLIC LIBRARY

Entitled the
INFORMATION SYSTEMS REQUIREMENTS STUDY
AND
REVIEW OF RELATED TECHNICAL
AND MANAGEMENT ISSUES

DECEMBER 1985

**THE HAMILTON GOVERNMENT GROUP
INFORMATION SYSTEMS REQUIREMENTS STUDY
AND REVIEW OF RELATED TECHNICAL
AND MANAGEMENT ISSUES**

TABLE OF CONTENTS

Letter of Transmittal	
EXECUTIVE SUMMARY	1
CHAPTER 1: INTRODUCTION	1-1
Background	1-1
Study Objectives and Scope	1-2
Engagement Approach	1-3
- Review of Background Material	1-3
- Systems Planning Workshops	1-3
- Individual Department Interviews	1-4
- Consultant Workshops	1-4
- Steering Committee Meetings	1-4
CHAPTER 2: SUMMARY OF REQUIREMENTS	2-1
General Observations and Conclusions	2-1
- Potential Application Backlog	2-1
- Scope of Potential Applications	2-2
- User Department Sophistication	2-3
- Application Obsolescence	2-3
- Major Opportunities	2-3
- Application Duplication	2-4
- Foundation Systems	2-4
- Specialized Departmental Systems	2-4
Management Implications	2-6
- Systems Development Considerations	2-6
Summary	2-6
CHAPTER 3: TECHNICAL AND MANAGEMENT ISSUES REVIEW	3-1
The Issues	3-1
- Service Levels	3-2
- Long-Range Planning for Systems	3-3
- Staffing and Structure of Systems Departments	3-6
- Cost of Services and User Fees	3-9
- Security Issues	3-10
- Systems Development Methodology	3-11
The Next Phase - The Road Map	3-12

**THE HAMILTON GOVERNMENT GROUP
INFORMATION SYSTEMS REQUIREMENTS STUDY
AND REVIEW OF RELATED TECHNICAL
AND MANAGEMENT ISSUES**

TABLE OF CONTENTS

- 2 -

APPENDICES

A - PRIMARY CHARACTERISTICS OF PROJECTS	A-1
B - SECONDARY CHARACTERISTICS OF PROJECTS	B-1
C - PROJECT DESCRIPTIONS	C-1
D - INTERVIEWS AND WORKSHOP ATTENDEES	D-1

LIST OF EXHIBITS

	Opposite Page No.
2-1 DISTRIBUTION OF APPLICATIONS BY CLASS	2-2
2-2 APPLICATIONS REQUESTED BY EACH ORGANIZATION	2-3
3-1 DISTRIBUTION OF USE OF THE REGIONAL WANG VS DATA PROCESSING SYSTEM	3-9
3-2 DISTRIBUTION OF USE OF THE CITY'S SYSTEMS AND DATA PROCESSING RESOURCES	3-10
A.1 PRIMARY CHARACTERISTICS OF SYSTEMS PROJECTS	A-2 (OVERLEAF)
B.1 SECONDARY CHARACTERISTICS OF SYSTEMS PROJECTS	B-1 (OVERLEAF)

Mr. J. Thoms
Chairman
Information Systems Requirements Study
Steering Committee
Commissioner of Planning and Development
The Regional Municipality of Hamilton-Wentworth
14th Floor
Ellen Fairclough Building
119 King St. W.
Hamilton, Ontario
L8N 3V4

January 9, 1986

Dear Mr. Thoms:

Thank you for the opportunity to work with your three administrations on defining your individual and collective information system requirements.

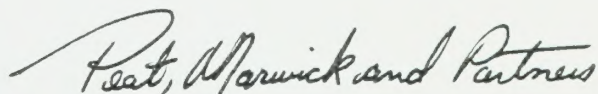
We are pleased to submit our final report entitled "Information Systems Requirements Study and Review of Related Technical and Management Issues". The report contains the findings and conclusions reached during our study of the organizations in the Hamilton Government Group.

We trust you will find this report useful in helping to plan the continued evolution of your systems activities. Our consulting team appreciated the cooperation and candor of the many managers with whom we worked.

Please accept our best wishes for the development of a realistic strategy and its ultimate implementation at the Hamilton Government Group.

Yours very truly,

PEAT, MARWICK and PARTNERS

A handwritten signature in cursive script that reads "Peat, Marwick and Partners". The signature is written in dark ink and is positioned below the typed name of the firm.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

This report presents the results of a review of the information systems resources and future application requirements of the Regional Municipality of Hamilton-Wentworth, the City of Hamilton and the Hamilton Public Library (referred to collectively in this report as the Hamilton Government Group or HGG). The review is the first phase of a process that will result in the development of a comprehensive information systems plan for your organizations.

Each of the three organizations has a unique history in the use of computerized information systems. The City has been using computerized systems for close to 25 years and faces many of the challenges of mature systems organizations (e.g., heavy maintenance workloads, and aging systems). The Region has been using systems since its formation in 1974 and is an aggressive user of automation. It uses a combination of approaches including the City's resources, its own hardware and systems groups, and external service bureaux. The Library has been a heavy user of automated systems since 1980. It has relied exclusively on the City for support and service of its purchased library software packages.

Their different experiences and needs have had an impact on their current status and our findings and conclusions.

In performing this study we reached a number of conclusions which are identified below and discussed in detail in the report. These 16 key conclusions will become issues for analysis and resolution during the next phase of the study.

1. Your managers have identified requirements for more than 130 new or upgraded computerized systems. These systems range in scope from personal productivity tools to major corporate systems.
2. Included in these 130 plus applications are four classes of systems that will have a significant impact on both the user departments and the resources of the systems functions at both the City and the Region. These four major groups include integrated office systems, property systems, human resources, and financial systems. The office systems in particular will demand a heavy investment in upgraded central hardware, network facilities, workstations, training, organization and procedure redesign, and software development.
3. There is a high level of awareness of the ways that automation can help departments fulfill their mandates. Thus, resistance to the introduction of automation is not likely to be an issue at the management level.
4. The majority of the new or upgraded system requests can be applied in all three organizations. This suggests that many of the new systems could be co-developed and system resources may be able to be shared.

5. Many of your existing systems are approaching technical and functional obsolescence and will have to be replaced in the next few years, creating an opportunity to develop integrated systems for use by many departments.
6. Major opportunities for improved management control and increased productivity, through the use of automation, exist in several departments.
7. Several departments, such as Planning and Transportation (Transit), have developed sophisticated systems using their own resources.
8. Current systems, such as the Planning Department's industrial database, have the potential to become foundations for many of the newly identified requirements. These systems will require additional funding and technical support to achieve their full potential.
9. Large departments, such as the Fire Department, Transportation and the Library, have specialized needs that require unique hardware, support or service considerations for a variety of reasons including: their extended hours of operation, the application software available, or the nature of the data bases involved.
10. The true costs and value of the services provided by the City's Systems Division to the Region and the Library needs to be established in a competitive and equitable manner.
11. A comprehensive set of service level standards for system activities including development, maintenance and production needs to be created, and complementary performance measurement systems should be implemented for all three organizations.
12. Additional emphasis is required on long range planning of information systems and the complementary resources such as hardware, software, data bases, networks and staff.
13. The Region's systems committee, REMIC, is an excellent vehicle for coordinating systems requirements and priorities.
14. The systems departments at both the Region and the City have a good base of personnel, but some retraining, as well as highly specialized planning and technical skills are required.
15. Additional attention should be given to disaster planning and security issues.
16. A functional and uniform systems development and project management methodology needs to be established for all three organizations.

We have reviewed your requirements from a number of perspectives. Chapter 2 summarizes the inventory of more than 130 new or upgraded applications that we have

developed. Appendices A to C contain further details on each of these projects. This inventory identifies opportunities to share resources productively. However, we highlight in Chapter 3 several challenges that must be faced and overcome, regardless of whether these systems are developed on a shared or on an independent basis.

The next phase should develop a strategy to help your three organizations achieve your systems projects in the most effective manner. It should also address the challenges raised in Chapter 3, such as systems development methods and standards, service levels, and the cost recovery of system services.

We wish to acknowledge the contribution made to this study by the Engagement Steering Committee. The assistance provided by Mr. Jim Hindson was particularly valuable and greatly facilitated the performance of our work. We also appreciate the cooperation we received from all staff members in your organizations.

CHAPTER 1
INTRODUCTION

1 - INTRODUCTION

This report presents the results of a review of the information systems resources and requirements of the Regional Municipality of Hamilton-Wentworth, the Corporation of the City of Hamilton and the Hamilton Public Library Board. In this chapter, we review the background to the study, its scope, and the approach we followed in completing this assignment.

BACKGROUND

Each of the three organizations has a unique history in the use of computerized information systems.

The City first started using computerized systems in the early 1960's. By the early 1970's, it was a recognized leader in municipal systems (e.g., water billing, social services). However in recent years, like most mature systems groups, the City has had to spend an increasing amount of time maintaining a large number of aging systems. As a result, the City's systems professionals now estimate that they spend up to 60% of their time on maintenance activities, as opposed to new development. The limited resources that they have had for new development over the last five to ten years have been diluted further because of the assistance they have provided to both the Library and the Region with new systems projects.

The Region was formed in 1974. Initially, most of their system needs were met by using the City's system resources. However, because of the unique needs of the Region (e.g., Transportation) and different priorities between the two organizations, the Region has gradually built up its own system staff, hardware and software resources using both a central group (located within the Finance Department), plus systems staffs in major user departments (Transportation and Planning), and distributed hardware (Transportation).

The Region continues to use the City resources for some of its more mature systems. However, many of its newer systems have been developed internally to run either on their own equipment or at service bureaux. Unlike the City, the Region does not yet have as many mature systems to maintain. Consequently, the Region's systems staff can spend more of their time on new development and less on maintenance.

Since 1980, the Library has been implementing and using a comprehensive online package for libraries, called DOBIS, using the City's system staff and hardware. DOBIS involves a number of modules including circulation control, cataloguing, acquisitions, public access, etc. Until 1985, their objectives have focussed almost exclusively on implementing the various modules of DOBIS using the City's system resources. This year they have started to explore the use of micros for certain office information systems.

In October 1983, the Region and City Finance Committees and the Hamilton Library Board approved recommendations from their respective management teams to explore cooperative systems development and to examine the rational use of shared system resources.

Your three organizations then developed the terms of reference and created a Steering Committee to select and manage a systems consultant to help identify each organization's unique and common requirements.

STUDY OBJECTIVES AND SCOPE

As a first phase in the development of a strategy for your three organizations to examine the opportunities for cooperation and sharing, Peat Marwick was engaged in July 1985 to:

- develop a current inventory of information systems resources and requirements of the Hamilton Government Group,
- express opinions on a number of specific issues relating to the development of information systems and the delivery of systems services.

The study did not review alternative management and technical structures, application architectures or implementation strategies.

This requirements study was primarily concerned with gathering the facts for the subsequent evaluation of options available to the Hamilton Government Group for optimizing the effectiveness of your information systems resources. Subsequent phases will draw upon this information and produce firm recommendations and detailed implementation strategies.

Several resource inventories have been prepared over the past three years by members of the HGG. During the conduct of this study we consolidated the previous documents and updated them to reflect current plans. As explained in the main body of this report, the lists that we have prepared can be considered representative but not necessarily exhaustive.

A challenge faced by the consulting team was development of a list of resources and requirements that could be considered "current". During the three-month duration of the study, changes were made to existing systems and equipment allocations. We are aware that in some instances the report may be dated. For planning purposes, however, we believe that the list of resources and requirements is valid.

The requirements inventory serves a number of purposes:

- it identifies requirements for new or upgraded information systems,
- it highlights opportunities to share existing resources among users with similar requirements,

- it provides an opportunity to reduce systems development and operational costs and improve the value of new systems by combining proposed projects that share common users or information resources,
- it identifies unique departmental requirements that cannot be satisfied by corporate systems initiatives, and
- it assists management in identifying organizational implications and the resources required to implement and operate effective information systems.

The Executives of the HGG are committed to increasing the effectiveness of their use of systems technology. To this end, senior management wish to encourage the rational co-development and sharing of system resources. Before any coordinated efforts can occur, it will be necessary to establish standards relating to service levels, user fees, development methodologies, and security and to resolve a number of other management issues. We have reviewed several of these issues with the objectives of:

- comparing existing standards and procedures with those considered generally acceptable by government and private sector organizations,
- identifying specific changes or enhancements that will be required to encourage and support cooperative efforts.

ENGAGEMENT APPROACH

As described above, this engagement was essentially a fact-gathering exercise that will provide input to future phases of your long-range systems planning and strategies. Our work program consisted of the following steps.

Review of Background Material

We collected and reviewed a large amount of background data relating to the current facilities, systems, plans and operating procedures of all three organizations. The information we reviewed included budgets, current system documentation, organization charts and position descriptions, equipment and software lists, utilization statistics, published and informal standards and procedures, current work assignments, schedules, priority lists and status reports.

Systems Planning Workshops

We held full-day planning workshops for senior officers of each of the three organizations. These workshops provided us with valuable information regarding the plans and needs of all of the key HGG departments. We also obtained input as to the concerns a number of departments share: particularly their concerns about service levels, autonomy and the priority-setting process.

Following the corporate-level workshops, seven cross-organizational sessions were held for middle management personnel. These workshops were hosted by the Engagement Steering Committee under the guidance of Mr. James Hindson, the Study Coordinator. They focused on common systems requirements such as property-based, human resource or financial systems.

Although Peat Marwick did not participate directly in these sessions, we have reviewed the report prepared by Mr. Hindson and, where possible, have incorporated the results into our findings.

Individual Department Interviews

A team of consultants performed individual interviews with representatives of all operating departments in the HGG. Each interview was from one to three hours in duration. In some cases, we met with officials individually. In other cases, we conducted mini-workshops for groups of managers, for example with Social Services and Transportation.

The objectives of the individual interviews were to determine how satisfied departments are with existing systems and to identify any plans for future automation. As might be expected, the information we were able to obtain varied greatly in depth from interview to interview. In some cases, such as the Traffic Department, there was a well-defined list of requirements. In others, the officials could see no need for automation.

Consultant Workshops

Following completion of the engagement field work, the consulting team held three planning and analytical sessions to review the interview results and consolidate the background material.

As a result of these workshops, we performed a number of confirmation interviews to validate our conclusions and, where necessary, to gather additional information.

Steering Committee Meetings

Throughout the engagement, close contact was maintained with a Steering Committee composed of:

- Mr. J. Thoms, Regional Commissioner of Planning and Development and Steering Committee Chairperson

- Mr. E. Matthews, City Treasurer,
- Ms. B. Zommers, Coordinator of Automated Systems at the Library,
and
- Mr. J. Hindson, Manager of Operations, City Traffic Department
and Study Coordinator.

At a number of formal and informal meetings, we reviewed progress, outlined any concerns or issues and sought any clarification that was required.

We also met with each of the chief executives of the HGG on two occasions to obtain their input and views as to the focus of the study.

The next two chapters of this report present our findings and conclusions on the various systems projects required by your users, as well as the results of the management and technical issues review.

CHAPTER 2
SUMMARY OF REQUIREMENTS

2 - SUMMARY OF REQUIREMENTS

In this section, we present our general observations and conclusions from compiling the requirements inventory. (The inventory listing is presented in a series of tables in Appendices A to C of this report.) At the end of this chapter we discuss the implications for management of our conclusions.

GENERAL OBSERVATIONS AND CONCLUSIONS

We have summarized our observations and conclusions regarding your requirements under the following headings:

- Potential Application Backlog
- Scope of Potential Applications
- User Department Sophistication
- Application Obsolescence
- Major Opportunities
- Application Duplication
- Foundation Systems
- Specialized Departmental Systems.

Potential Application Backlog

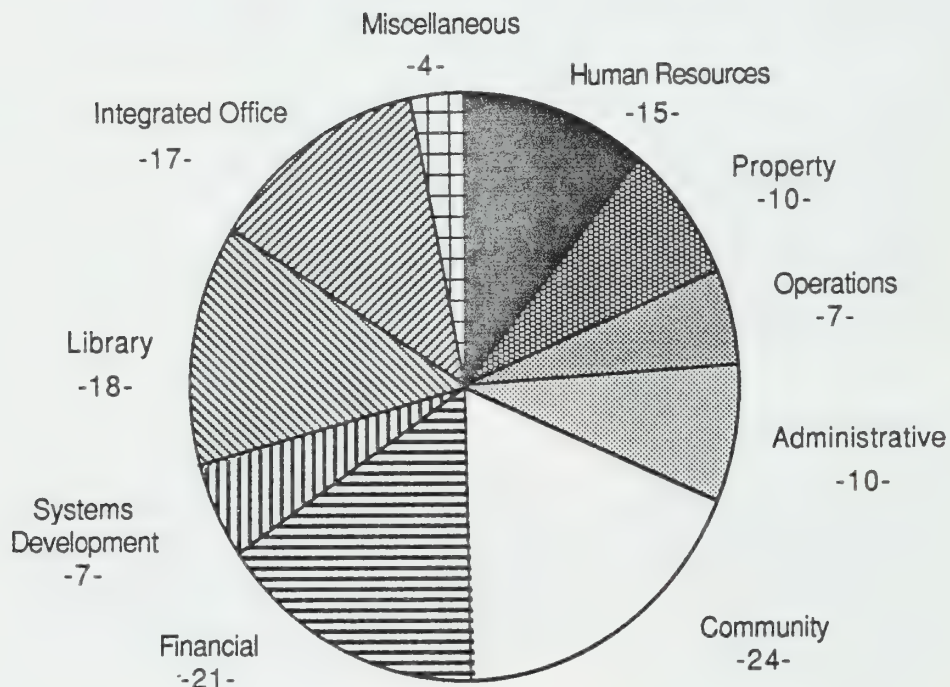
During the study, more than 130 potential applications were identified by managers in the various HGG departments. Some of these applications are currently under development, others are scheduled to be started in the near future, and the rest are identified for possible future development. Appendix C contains a broad description of each of these projects. The applications range in complexity from simple personal productivity tools to highly complex corporate systems.

We have not attempted to quantify the costs or benefits associated with the proposed systems, although Appendix B identifies the potential benefits on a preliminary basis. Nor have we attempted to estimate the resources required for their development and ongoing operation. However, if only 50% of the identified needs proved justifiable, the present development and computing resources of the HGG would be overwhelmed for many years.

Exhibit 2-1, overleaf, depicts the distribution of the applications, categorized into 10 major classes or groups. Of these classes, four will require particular attention in the strategy phase:

- Integrated office systems (IOS or office automation) because of the investments required in hardware (including upgraded central computers and workstations), network facilities, software development, and training. With IOS

EXHIBIT 2-1
DISTRIBUTION OF APPLICATIONS BY CLASS



TOTAL - 133 PROJECTS

NOTE: The numbers below each application class represent the number of specific projects in that class. The size of each sector and the number of projects in each class do **not** indicate either the importance of the projects in that class or the size of the investment. See Appendix C for a brief description of each of the projects.

projects, it is essential to your success to address the complementary operational infrastructure issues (e.g., organization redesign; new policies/standards for data administration, security, systems development and acquisition; job retraining and career counselling; central and local support).

The resolution of these infrastructure issues are critical if IOS facilities are to be widely accepted and used in the organization **by all users** -- not just the early adopters of technology. For end-user systems to work well, information and data bases should be as accessible as electricity, and the systems should be as easy to use as a modern home appliance. **This kind of information utility concept will not just happen -- it must be planned and managed by all the affected parties: senior management, system professionals, users including elected officials.**

- The property systems, because of the wide variety of users who want to be able to share and extend the information contained in both the Region's and the City's property data bases. Further, challenges to sharing will arise with the development of package software and special hardware designed to handle geo-coded data, digitizing/plotting maps, and workstations with different graphics capabilities.
- The human resource systems because of the complexity of the benefits administration with a wide variety of plans and union contracts. Your diverse needs will be a challenge for any package or systems developer and will require a significant investment to implement a comprehensive system if it is to be used by all major users.
- The financial systems because of the number of users who are anxious to have tighter control and online access to their purchasing and financial data. Already several users either have an informal system or plan to build one if a more timely and complete **corporate** system is not implemented soon.

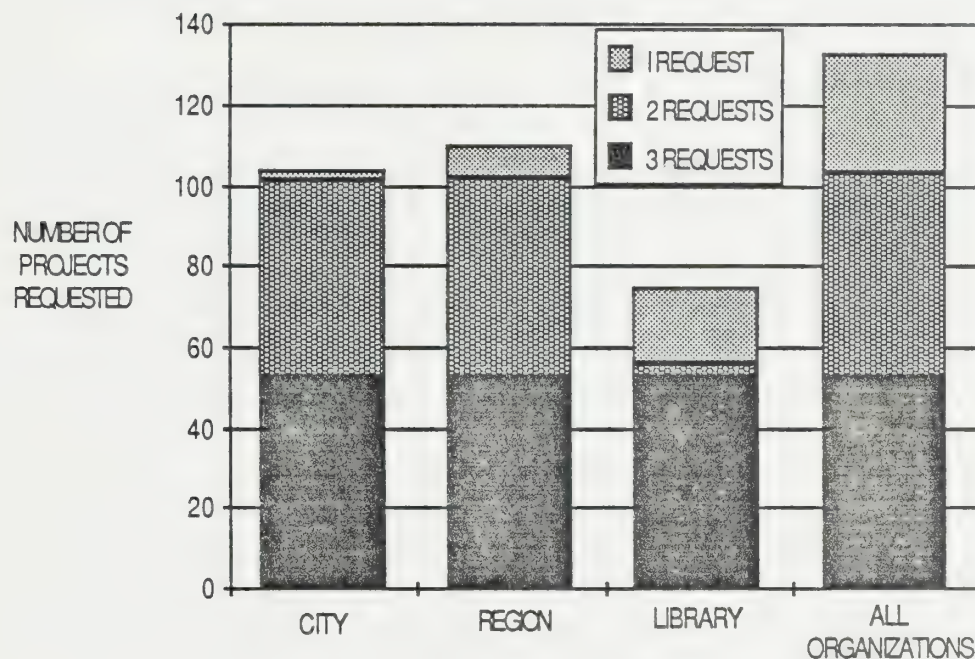
Scope of Potential Applications

Many of the potential applications are corporate in scope. A corporate application is defined as one that at least three departments have identified as a high priority.

Based on estimated processing requirements and the number of departments requesting new systems, it is apparent that current equipment will have to be extensively upgraded in

EXHIBIT 2-2

APPLICATIONS REQUESTED BY EACH ORGANIZATION



NUMBER OF REQUESTS	SUMMARY OF REQUESTS BY ORGANIZATION			
1 REQUEST	3	8	19	30
2 REQUESTS	48	49	3	50
3 REQUESTS	<u>53</u>	<u>53</u>	<u>53</u>	<u>53</u>
TOTAL	104	110	75	133

NOTE: The shading of the chart depicts the number of organizations that requested each of the projects identified in Appendix A:

- 1 Request = only one organization requested the project
- 2 Requests = two organizations requested the project
- 3 Requests = all three organizations requested the project.

the near future. The extent of the upgrade will be estimated during the next phase of the study as the requirements list is rationalized and the strategy is developed.

Exhibit 2-2, opposite, depicts the number of systems requested by the Region, the City, and the Library. The distribution indicates a high degree of commonality in the systems being requested. Of the 133 projects, 53 are requested by all three organizations. In appendix A, there are an additional 50 projects that have been identified by at least two organizations in the group. This suggests that many opportunities to co-develop new applications exist.

User Department Sophistication

We found a high level of awareness of advanced systems concepts in many user departments. The systems being requested are typically online, database applications rather than traditional batch-processing, sequential-file systems.

We also encountered a strong demand for personal productivity tools and local processing power. It is apparent that many management personnel are aware of the need to improve productivity and obtain high quality information to support decision making, plus the role that can be played by automation in achieving their goals.

Application Obsolescence

Although major foundation systems that were developed in the early 70's were considered state-of-the-art at that time, these systems are still operational today. They are becoming increasingly expensive to maintain and obsolete with rapid changes in both user requirements and technology. Systems such as the financial accounting, taxes and human resource-related applications will require replacement within the next 3-5 years or sooner, if major enhancements or large-scale integration of applications are planned.

We have not performed a detailed evaluation of the existing applications. Based on our experience, however, we would suggest that more than half of all applications currently used in the HGG are either at or approaching the point of being serious candidates for replacement.

Major Opportunities

A number of opportunities exist to improve management control and productivity. The benefits associated with these systems can be realized quickly with little impact on the data processing function's workload.

The Social Services Department - Homes for the Aged Division offers one such opportunity. The Regional homes are in many ways analogous to hospitals. Yet, unlike modern hospitals, virtually no automation has been applied to their administration. There are a number of good systems available for automating functions such as:

- admissions and patient records management,
- nurse and staff scheduling,
- dietary and pharmacy order processing and management, and
- physical inventory, asset control and financial management.

Several of these systems are offered by their developers as "turnkey" applications which may operate on HGG's existing hardware and help to relieve the pressures for system professionals for design/development and implementation tasks.

Application Duplication

Many applications are being requested by departments in all three organizations. Although some data and reporting requirements may be unique, most systems share a core of common functions and data elements. Examples of requests for new systems that could be co-developed include all of the human resources, purchasing, land-based property, financial reporting and budget preparation, inventory control, Clerk's and Legal Department systems.

Foundation Systems

HGG has purchased and developed a number of software applications that could become "foundations" for the future breed of integrated systems. Some of these are successes; others will require additional effort and investments to reach their full potential.

Many of the new requirements identified during this study relate to property-based information. The Regional Planning Department has developed a system which could become a foundation for all property-related systems. In order to realize the additional benefits that could accrue from sharing the Planning Department's existing software and data bases with other departments that require land-related information (Engineering, Fire, Clerk's, Building, etc.), more funds and human resources will have to be invested in the short term.

These investments will include the enhancements required to the data base, software and hardware (e.g., linking ancillary department data bases - Fire, Engineering, Property, etc. - to the assessment and planning files, a new tax assessment and billing system, workstations to display property information graphically, etc.). The benefits to be gained from an integrated property information system should outweigh the short-term investment required.

Specialized Departmental Systems

Several major departments have systems requirements that are unique and cannot be satisfied solely within the framework of the existing City or Regional centralized data processing installations and/or support organizations. These include:

- the Fire Department, which requires 24-hour, 365 days-a-year processing to support a computer-assisted dispatch system,
- the Transportation (Transit) Department, which has unique, interactive systems that can only be met by software packages available on DEC equipment,
- the Library, which is the largest user of computing resources in the HGG, requires more systems support and will need more computing power than is currently provided by the City if they implement all of their identified applications.

The ability of these departments to fulfill their mandates is directly linked to their having satisfactory automated systems and support. The Transportation Department is currently self-sufficient. The Library and Fire Department are totally dependent on the City's Systems and Data Processing Department.

The Library

Because of its size and complexity, the Library merits additional discussion in this report.

The Library's major computer system is DOBIS, a third party software system purchased from IBM. DOBIS controls the circulation of library material, and maintains and provides access to the catalogue. At present, several additional DOBIS subsystems are available to the Library, but they have not been tailored to the Library's requirements and are not operational (e.g., acquisitions, public access, etc. See Appendix C, class 8.00 - Library Systems for details.).

The City's Systems and Data Processing Division is responsible for the maintenance of DOBIS. However, even though the Library currently accounts for almost half of the City's total usage of computing power, it is allocated only part of one analyst's time and a programmer to support and enhance the system. The DOBIS package is complex, it uses sophisticated systems software (CICS), and a programming language (PL/1) that is unique to the Library. As a result of these special technical characteristics, the systems professionals supporting the DOBIS system require additional technical training in order to service the Library effectively. Further, the Library runs the system into the evening shift and on weekends. The City however only provides operational support from 9 to 5 on week days. The result is that when problems occur or changes are required, there is frequently a shortage of properly trained resources available to help Library users.

The Library has defined an ambitious program for new applications and enhancements. They also require improved support to address operational concerns (e.g., see Appendix C, project 8.02, Circulation - Reliability). Additional systems professionals will be required to maintain the current systems and support the identified development plan. We discussed the DOBIS system with its developers in Germany. They indicated that two fulltime systems personnel are required to maintain the existing system properly and to install the remaining modules and upgrades. They also advised us that full implementation of DOBIS could require a larger IBM 4300 processor than they are currently using at the City.

Like other departments, the Library has identified requirements for improved communications, office automation tools and local processing power. These needs are combined into the detailed requirements tables in Appendices A to C.

MANAGEMENT IMPLICATIONS

The next phase of this study will analyze the implications of our findings and develop a strategic plan for information systems within the HGG. There is, however, one observation that can be offered regarding systems development.

Systems Development Considerations

During our tabulation of the requirements lists we were impressed by the number of potential projects that appear to have a common or shared focus. Approximately 78% of all systems identified were requested by at least two of the major HGG members. This high number of systems that would be used by more than one group will have a significant impact on your systems development resources. Corporate and integrated database systems are typically more complex than the systems currently in place within HGG (the major exceptions being MSA and DOBIS). Design, development and ongoing support of systems that must meet different users' needs will stretch the abilities of your most talented systems professionals and require significant staff development and retraining.

Moving to a more modern systems environment will also change the mix of skills that will be required. In the next chapter of this report (under the heading "Staffing and Structure of the Systems Departments") we identify six groups of skills that do not currently exist in the HGG. As described, these skills will be crucial to your future success.

SUMMARY

HGG is at an important stage in the life cycle of its systems facilities. There are pending requirements that will require major upgrades to your hardware and software development capabilities. Many of your existing systems are approaching the replacement point. One of the keys to your ability to overcome the challenges and capitalize on the opportunities will be the development and acceptance of an integrated technology strategy for all HGG departments. The second key will be how well each of your three organizations work together and individually to address the management and technical issues discussed in the next chapter. Proactive, empathetic and strong leadership will be required.

CHAPTER 3
TECHNICAL AND MANAGEMENT ISSUES REVIEW

3 - TECHNICAL AND MANAGEMENT ISSUES REVIEW

This section of the report presents our findings and conclusions on technical and management issues associated with development of information systems and their delivery. The issues studied were specified by the Steering Committee.

In preparing this chapter, we have addressed the issues for each organization individually. Where appropriate, we have also included an overall opinion on each issue. Because the Library is essentially a "user" of the City's services rather than a provider of system services, it has been excluded from this review. The Regional Transportation Department, which includes the former Transit (HSR) data centre, is considered a separate entity for the purposes of this review, because of the unique funding arrangements and user/developer relationships associated with its systems.

Our review of these issues is, by its nature, critical and does not address the many accomplishments the Regional and Hamilton City systems groups have achieved over the years. In our opinion, the Hamilton Government Group has a good foundation of human and computing resources on which it can build for the future. What is required now is leadership, new tools and a well-defined long-range system strategy to address the issues raised in this chapter and to rationalize the new projects identified by your users, along with the current initiatives already in progress.

THE ISSUES

The issues identified for review are as follows:

- **Service Levels** - What is the current level of service provided to users of the HGG data processing facilities? Is the service level adequate?
- **Long-Range Planning for Systems** - Do long-range plans exist for the use of automation within each organization?
- **Staffing and Structure of the Systems Departments** - Are the departments structured and staffed for optimum effectiveness and responsiveness to users' needs?
- **Cost of Service and User Fees** - Are chargeback systems in place to equitably allocate the cost of providing systems services on a user fee basis?

- **Security Issues** - Are appropriate measures in place to protect against accidental or deliberate misuse or destruction of equipment, networks, applications and data?
- **Systems Development Methodology** - Are computer systems designed, developed and maintained in accordance with reasonable methods and standards?

We discuss our findings and conclusions on each of these issues below.

Service Levels

It is difficult to measure service levels objectively within the context of the HGG because few formal performance standards exist for systems development functions. The exceptions to this general finding are with operational systems, such as payroll and welfare assistance, which are processed in accordance with rigidly enforced schedules.

Our findings on this issue are based more on perceptions obtained during interviews with technical and user personnel than on objective measures. We therefore offer them as observations rather than firm conclusions.

The Region

The Region's data processing group is seen by its users (primarily the Finance Department) as enthusiastic and willing to help, but functionally and technically limited and overloaded with work. Because most of the group's time has been devoted to the Finance Department and word-processing activities, it was not possible to arrive at an assessment of their performance in other areas.

We are therefore unable to offer an opinion on the service rating or performance potential of the Region's Data Processing group.

The City

The City's Systems and Data Processing Division has been providing systems and operations services to a variety of users since 1968. The environment in which they operate is technically complex. The demand for service (both new development and maintenance) appears to exceed the group's capacity in terms of staff complement and skills.

We interviewed a number of users who were completely satisfied with the service they were receiving. Unfortunately, these users were in the minority. When praise was

offered, it was generally directed at the efforts of individual analysts or programmers rather than the efforts of the Division.

The City's Systems and Data Processing Division needs to strengthen its long-range planning, and develop a stronger service orientation to user needs and requests for maintenance.

We observed a number of instances where requests for systems maintenance or assistance with a problem had gone unserved for excessive periods of time. On the other hand, we also observed instances where users were upset about the level of service they were receiving without any apparent justification. During our interviews, the systems staff were always well prepared and appeared eager to assist in completion of the engagement.

Some of the Division's problems seem to be the result of the reputation that it has developed during the past ten years. Others are caused by the structure, staffing, systems development and management techniques employed on projects.

In our opinion, a substantial overhaul of the systems group will be required if it is to overcome the image that has developed and become a more effective, professional-services organization.

Long-Range Planning For Systems

Long-range systems planning is designed to assist organizations achieve their goals through the use of automated tools and information management techniques. A long-range systems plan usually addresses a five year period.

Long-range plans will typically begin with an outline of the overall system goals visualized by the organization, described in broad terms such as:

"..... within five years we want all major systems to be integrated and accessible by online terminals...."

These "visions" or goals will be refined to address specific objectives such as the need to update current equipment configurations:

".....Our existing mainframe will have to be upgraded to accommodate additional communications terminals..."

The objectives are refined to address specific short-term strategies, such as replacing existing applications or installing micro-based networks. The strategy statements are refined to produce short-term tactics, which themselves are refined to produce specific projects -- each with a detailed plan, budget and schedule.

This is a highly simplified description of the planning process. Each of the steps, however, is necessary in the evolution of a successful systems support operation. If steps are omitted, the result is confusion, lack of commitment among both users and systems professionals, and unnecessarily expensive, ineffective automation.

The Region

The Region has established a systems steering committee known as REMIC. REMIC is composed of representatives of various regional departments that use automated support systems. In addition to providing a forum for exchange of systems ideas and sharing of plans, REMIC also advises the Region on priorities for developing information systems and acquiring computing equipment.

Each year, REMIC solicits systems plans from all Regional departments and assesses them using a priority-setting algorithm. The resulting lists represent the system plans for the forthcoming year and, in general terms, for the three years to come.

Although this is a sound process, it could be improved in three areas:

- setting of long-range strategic direction,
- evaluation of resource requirements for prospective projects,
- responsiveness to "small" clients.

While REMIC projects focus on both short-term or individual divisional or departmental needs and longer-term corporate systems, such as personnel or payroll that address all departments, we found it difficult to grasp the overall direction the Region wishes to take with automated systems from our review of REMIC reports and priority lists. Without a clear long-range direction, REMIC is subject to short-term pressures that can divert the organization from pursuing some more strategic and time-consuming initiatives. We understand that REMIC members are concerned about the setting of priorities.

The second area that needs improvement is the definition and sizing of prospective projects. Our review of the 1985/6 priority list identified a number of projects which are scheduled to start within the period, but which would appear to exceed the development capabilities of the Region. In developing priority lists, it is as important to determine what can be achieved as it is to determine what should be done. Otherwise, the priority-setting and scheduling process will lose credibility among user departments that are left waiting for service.

Finally, we believe that the Region's smaller departments may not receive the same degree of consideration as larger users when the priorities are being set. This is partly the result of REMIC's necessary focus on corporate initiatives, but also because smaller departments may lack the internal expertise to identify opportunities for improvement of their operations through the use of automation. To resolve this issue, the Systems Division, with REMIC's

support, must take the initiative in seeking out new clients. We recognize the contradiction between this comment and previous observations concerning the Systems group's workload.

In our opinion, REMIC is an excellent mechanism for achieving the Region's systems goals. It could be more effective if it carried out its priority-setting within the context of a formal long-range plan and if the three issues discussed above were addressed.

Transportation Department

The Transportation Department of the Region operates its own data processing function as the result of a provincial government program to automate urban transit systems. The long-range plan for information systems evolved out of a systems architecture designed to integrate all major operational and administrative aspects of the transit function. The Department's system plans support its own organizational objectives for both the long- and short-term, and are well defined and rationalized.

The major issue to be resolved is the reconciliation of Transit support systems with the Regional equivalents. For example, there is a Transit purchasing and payables system that partly duplicates facilities available at the Region. Although it would be possible to cancel development or abandon duplicated systems, it must be remembered that the Transit system has been developed within the context of a long-range plan and architecture. Eliminating individual parts will significantly affect the efficiency of the overall design.

The challenge is how to integrate Regional and Transit systems without introducing excessive duplication or destroying the integrity of either system.

The City

While individual system managers have documented plans for certain committed projects, plus ideas for longer term initiatives, we were unable to find evidence of a formal long-range systems planning process or a documented long-range systems plan. Nor does the City have a coordinating body involving users to assist in developing and rationalizing systems plans.

In the early years, there were fairly clear goals and objectives for the City's systems group. These essentially addressed efforts to automate Hamilton's major corporate systems (ie. tax, general ledger, payroll, etc.). When the Region was formed, it became a major user of City resources. The Library added to the workload when it acquired the DOBIS system on the City's advice.

For the past ten years, the City's Systems and Data Processing Division appears to have been limited in its ability to react to user demands. Also, the Division has done limited overall long-range planning, and appears to have had minimal user involvement in the priority setting and strategy development process. There are exceptions, such as the

systems recently developed for the Fire Department. But on the whole, there is little evidence of systems initiatives being taken. Although it could be argued that the introduction of DOBIS, the PROFS system and microcomputers is indicative of forward planning, we believe that these initiatives have been more a reaction to user pressures than part of an overall automation strategy.

As an example, the strategy would identify not just the user requirements, but the software development strategy, the hardware and personnel resources, networks and data bases, organizational, training/support and policy changes required to support effectively the significant investments that have been made in corporate systems and will be made in integrated office systems.

Staffing and Structure of Systems Departments

Our overall opinion on this issue is that neither of the major HGG systems groups is presently structured or adequately staffed to support the diverse requirements of their user departments.

The Region

At the time our study was conducted, the systems section at the Region consisted of seven personnel whose duties were described as follows:

- Manager of Information Systems - vacant
 - Systems Analyst - project management and planning
 - Systems Analyst - technical support
 - Programmer/Analyst - computer programming and operations
 - Operator/Programmer - 30% operations, 70% programming
 - Operator/Trainer - word processing training
 - Co-op Student - operations assistant.

When compared to the City's systems group, one might conclude that the Region is understaffed. However, the Region has taken a different approach to the organization and use of systems professionals. The Region uses external systems development personnel, hired on a contract basis for developing some of its systems. Others are developed and supported by personnel at the City. The Planning Department and Transit have both developed analysis and programming expertise to meet their own specialized requirements and can, for the most part, be considered self-sufficient. Therefore, it is not easy to compare the number of staff of the two departments.

We found one of the benefits of this distributed approach to systems support is that both Departments displayed a high degree of commitment, ownership and pride in their accomplishments.

The long-range support of the growing number of automated systems operating in Regional departments poses a substantial challenge. The Region's dependence on the City of Hamilton's systems group for general systems support has not proven to be an effective alternative. However, we do not believe that reliance on contracted development groups represents an effective solution because of the difficulties associated with enforcing standards and maintaining externally developed systems. The Region faces two major challenges in managing distributed systems and resources: enforcing standards, and coordinating the development of corporate and departmental projects between the central and user system groups (e.g., avoiding the departmental development of accounting systems that should be developed as a corporate initiative).

In our opinion, there are currently not enough staff in this Division to service the Region effectively. The present staff is too heavily weighted towards word processing, other office systems (i.e., personal computers), and operational support to be considered a general data processing support group. A significant investment in systems personnel will be required if the major systems now identified on the REMIC priority list are to be handled in the stated timeframes.

THE CITY

The City's central Systems and Data Processing Division is bigger than the Region's because of the number of users, applications, and the scope of the systems the Division supports.

At the time of our review, the City's Systems and Data Processing Division had a complement of 43 personnel, excluding secretarial staff. The duties or classifications of the personnel were as follows:

- Director of Systems and Data Processing (currently vacant)
 - Manager of Systems Development
 - Analysts (8)
 - Manager of Programming
 - Programmers I (5)
 - Programmers II (10)
 - Manager of Data Centre
 - Assistant Manager of Data Centre
 - Console Operators (5)
 - Unit Record Operator (1)
 - Key Punch Operators (6)
 - Supervisor of Microfilming
 - Microfilm Technicians (2)

There is a clear delineation of responsibilities at the City. The operations, systems and programming groups each operate relatively independently. From our interviews with both

systems staff, managers and users, it is apparent that the activities of these three Sections within the Division require improved coordination.

In our opinion, rigid enforcement of organizational boundaries within the City's Systems and Data Processing Division is a direct cause of some of the group's current difficulties.

Within the systems group, each analyst is responsible for servicing one or more user departments or functions (financial, payroll/personnel, fire, etc.) and is the back-up analyst for other departments or systems. This method of organization and staff assignment encourages the development of **functional specialists**. When a user department requirement is identified, the analyst performs the initial analysis and "sponsors" the proposed system through the approval process. If approved, the same analyst completes the final design and manages the implementation process. There is generally no direct contact between the users and the programmers.

Functional specialists have been successfully used in many environments. This approach represents the best method of servicing user needs in a centrally controlled organization.

There are several key success factors missing in the City's systems function. To be effective, especially in organizations with many opportunities for sharing systems and data, the group must operate within the framework of an overall plan and systems architecture. There should be a uniform set of design and project management standards. There should be close interaction between all participants in projects, including programming and operations personnel, systems and user department managers.

We believe that there are enough general systems personnel in the Division to service the needs of its clients. In our opinion, however, it will be necessary to add a number of highly skilled specialists to the Division in future years. The additional skill sets required include:

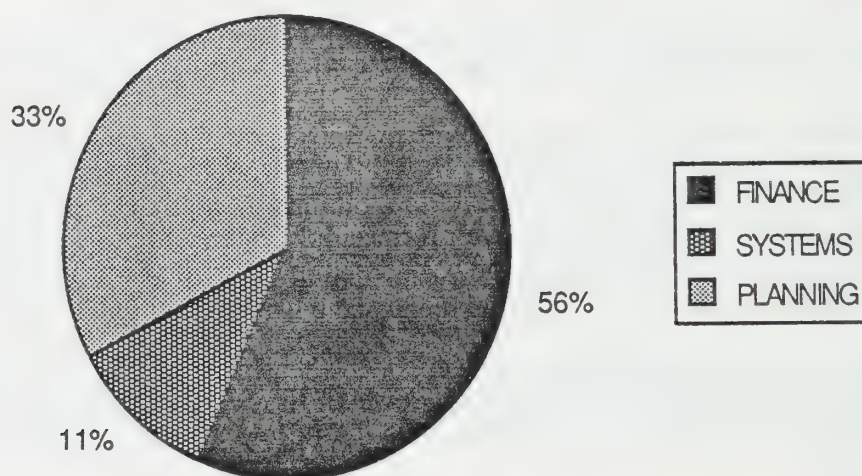
- systems architecture
- data management
- data communications
- capacity planning and performance tuning
- integrated office technology
- systems security planning and administration.

Based on our experience, it is normally impractical to attempt to turn general application analysts or functional specialists into these highly specialized personnel. It may also be impractical to assume that these skills can be acquired from external suppliers on a contract basis over the long term. The strategy phase should determine the best method and timing for introducing these skill sets into the organization.

EXHIBIT 3-1

DISTRIBUTION OF USE¹ OF THE REGIONAL WANG-VS DATA PROCESSING SYSTEM

REGIONAL WANG-VS



¹ Note: Based on disk storage usage reports.

Cost of Services and User Fees

It is difficult to provide an evaluation of the existing methods of charging users for use of the HGG information processing facilities. Several systems are currently in place and they appear to be inconsistently applied.

The Region

At the time of our study, the Region was planning to introduce a chargeback system for use of the Wang word and data processing facilities. Exhibit 3-1, opposite, depicts the approximate distribution of users of the Wang VS computer based on disk use. The Finance Department is the prime user of the of the Region's Wang-based systems. The new chargeback system will distribute approximately 33% of the system's current costs to the Planning Department based on current system utilization. The remaining 67% of the resources are primarily used by Finance and Systems functions, and the costs are therefore not subject to direct reallocation.

If other departments start using the Wang equipment to any extent, there will be a stronger incentive to allocate costs accurately on a user-pay basis.

The City

The City's policy is that data processing is a corporate service that is to be provided without charge to all City departments. The policy includes computer terminals, microcomputers, systems development personnel and mainframe utilization.

In the case of non-City users such as the Region, a fee based on anticipated use of resources is negotiated each year and charged as the expenses are incurred. The Library is charged for the terminal devices located on its premises, the disk devices allocated to its files, and part of an analyst's salary costs. The Region is charged a resource-based cost with an annual maximum. The charges do not cover the actual cost of the services provided to either the Library or the Region.

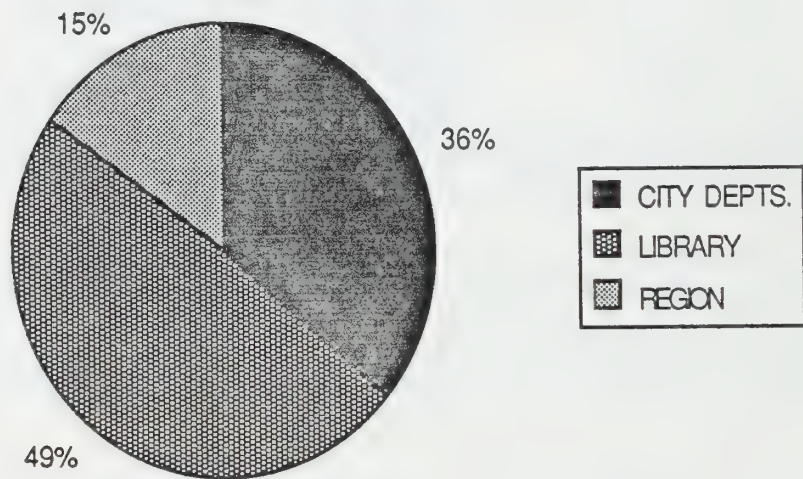
Exhibit 3-2, overleaf, depicts the total resource utilization by the three major users of the City's data processing facilities, based mainly on computer use. The data was extracted from the Division's internal accounting system for the five-month period beginning January 1985. The distribution depicts the use, not the capacity, of the City's resources.

The costs currently being allocated to users of the City's facilities are less than the cost of providing the services. We understand that the rates for systems personnel and computer usage are currently under review and that, in some cases, significant increases are being proposed. We reviewed the proposed billing structure and conclude that, although it will result in increased costs to some users, it will not result in an equitable method of recovering costs. Some users are concerned that the rates are not competitive now with other available alternatives (e.g., service bureaux and minicomputers with packages).

EXHIBIT 3-2

DISTRIBUTION OF USE¹ OF THE CITY'S SYSTEMS AND DATA PROCESSING RESOURCES

HAMILTON DATA CENTRE



¹ Note: Based on the CPU utilization reports produced by the Systems and Data Processing Division

The issue of charging for systems and data processing services is extremely complex. If many of the requested systems are implemented and funded through a user-pay system, there would be significant increases in the data processing expenditures of most users. Satisfactory resolution of the chargeback issue is crucial to sharing information systems resources and cooperative development. This issue must be analyzed and a strategy developed in the near future.

Security Issues

Security issues relate to protection of the system-related assets of the HGG against accidental or deliberate misuse or destruction. Security planning must include:

- access controls to computer equipment, communications facilities, application programs and data files,
- provision of backup processing to ensure continuity in the event of a major disruption of normal data centre operations,
- participation by internal and external auditors in the design and approval of all information systems with financial implications.

Each of the organizations we reviewed has taken basic steps to protect their major processing facilities against unauthorized physical access or destruction by fire. Each organization has also taken preliminary steps to identify alternate processing sites that could be used in the event of a prolonged system failure.

None of the organizations has completed a formal disaster recovery plan or risk analysis. No alternative processing arrangements have been tested. Like most organizations who have never had to use an external backup facility in a disaster, no formal off-site processing agreements had been signed at the time of our review. A formal reciprocal agreement is necessary if management is to have any assurance that the backup facility will be available when required, and if the restrictions and limitations of the external facility are to be known (e.g., the backup site may not have enough processing power or communications capabilities to support key online applications such as the Library's circulation system)

Formal standards are required for program and data security on microcomputers. A manager should be assigned the responsibility for the security, reliability and integrity of the main computer systems. Existing security standards for systems design and development should be updated and enforced.

In summary, security has not received appropriate priority in any of the HGG facilities. Further, in the event of a major systems interruption, the existing arrangements should be documented and tested to ensure continuity of processing.

Systems Development Methodology

In our experience, no single element is more important to the successful operation of an information systems division than a formal systems development methodology. Neither the Region nor the City uses a formal methodology.

The Region

As previously described, the Region uses external groups to develop most of its information systems. Its analysts attempt to manage the projects, but the extent of their control is limited to scheduling and acceptance of the tested deliverables.

At the time of our review, there were no standards in place at the Region to control the movement of a new system through the various phases of the systems development life cycle. Nor were formal design, programming, or documentation standards in place. The Director of Finance recently published an outline of the items that must be included in a predevelopment documentation package.

These items, which include data file descriptions, report layouts etc., are important elements in the design process. They are not a substitute for either a development methodology or programming standards.

The City

The City has a document that outlines the phases that a project must go through as it is developed. The document represents a reasonably good overview of an orderly development process; however, it contains limited detail on how to conduct the various phases, modify the process based on the size of the project, responsibilities of users and system professionals, and what the deliverables and control points are in each phase. During our review, we determined that the process is not generally followed by the analysts or enforced by management.

The City has a published programming standards manual. The manual is obsolete and needs to be updated in light of new development techniques (e.g., prototyping) and technologies (e.g., personal computing, online systems, etc.).

Our overall opinion is that neither the Region nor the City has adopted the tools and techniques required to ensure that information systems are developed effectively.

Regardless of the future organization or approach to co-development and sharing of system resources, it is essential that all systems be developed in accordance with formal standards and within the framework of a comprehensive systems development and project management methodology. It has been demonstrated in many organizations that installation

of these tools significantly increases productivity, reduces ongoing maintenance costs, and results in more functional information systems.

THE NEXT PHASE - THE ROAD MAP

The requirements identified by your users exceed the current available resources. Some would argue that the easiest way to overcome this shortfall in resources is to share the development effort through a central group. However, shared projects pose their own challenges (e.g., the Library's need for systems support and expanded use of computer resources). Others would argue that technology can address the shortfall in resources (e.g., encourage the use of end-user computing with fourth generation languages, report writing/screen generator software and micro-based productivity packages).

Distributed projects, such as those in Transportation and Planning, appear to be effective and tend to support the concept of users having more control over systems activities. However, these departmental systems pose other concerns: the need to share their data bases quickly and easily with external users on a common network, and the need to coordinate the development efforts of user departments to avoid duplication and incompatible systems.

In short, there are no simple and obvious solutions that work effectively.

In this chapter of the report, we have presented our observations and opinions on service levels, planning, organization, staffing and skills, cost of service and user fees, security, and systems development methods. These issues in large measure determine the effectiveness of the HGG systems functions, and resolving these issues will result in improved performance, user satisfaction and morale of the systems professionals in HGG.

More importantly, the success of the strategy study in the next phase and its implementation will depend on how well these issues are resolved. Furthermore, these issues must be resolved before any increased sharing of resources can or will proceed **with the support of your various users.**

Clearly a road map for the future evolution of systems (i.e., a comprehensive, documented strategy) is essential. It will help guide each of your organizations, departments, and many users, as well as systems professionals, as you become even more dependent on integrated online networks and shared data bases, and as end-users gain more computing power of their own.

A long-range systems plan and strategy will include not only a list of projects ranked according to priority, but also:

- an organization strategy for the systems functions (both central and distributed) and training plans for system professionals and users,
- a strategy for the development of new policies, procedures and standards to establish the utility infrastructure, and coordinate and direct the system professionals as well as users,
- a resource strategy for hardware, system software and networks including a capacity plan based on the approved systems projects, and
- a budget for the current year and longer-term planning cycle.

With the strong trends towards departmental distributed computing and end-user personal computing, large organizations are developing strategies and support infrastructures to make information and computing power quick and easy to use. The future information processing environment at the HGG will not just happen. It must be planned and documented. The information processing environment you should be creating should involve both the requisite data bases, networks, workstations, support and control infrastructures to aid users, as well as the upgraded hardware and corporate systems that are supported by your central systems groups. This information processing infrastructure and its management principles will evolve as your users become more demanding and the decreasing cost of technology promotes increased automation.

Regardless of the extent of co-development and sharing of system resources within HGG, a systems strategy embracing these elements is necessary to help you focus your individual and shared efforts.

APPENDIX A
PRIMARY CHARACTERISTICS OF PROJECTS

APPENDIX A - PRIMARY CHARACTERISTICS OF PROJECTS

In this appendix, Exhibit A.1, after page A.2, lists the 133 projects that your users identified in the course of two separate series of workshops and the individual departmental interviews. We have rationalized the requirements list to simplify the presentation and reduce redundant projects. For example, we have listed statistical packages and report/screen generators only once, even though they were mentioned numerous times in our interviews and several times in the functional workshops. The list does not include systems that are installed, unless they require significant enhancements or replacement in the near future.

We have developed some **preliminary** classifications of the primary and secondary characteristics of the application requirements. They will assist you and the consultant in scoping out the requirements and developing the strategy for the various architectures for the software, hardware, network and data bases. This appendix deals with the primary traits of the application requirements, including:

- the application class,
- the sponsoring organization(s) that want this system,
- the potential host computer on which the system could run,
- the overall potential scope of the system.

The users and the system professionals in the HGG should regard these classifications as a preliminary draft for discussion and comment. In the strategy phase, they will work with the consultant to revise and finalize these tables.

CLASSIFICATION METHODS AND CODES

The classification method and the codes used in the requirements lists are as follows:

- o **Organization** - the first three columns identify the sponsoring organizations who want this requirement. The three sub-heading codes represent your respective organizations (C = City, R = Region, L = Library). Under these sub-headings, we show the degree of common interest in the application by means of the following codes:
 - A = all three organizations
 - a two-letter code means two organizations are interested (e.g., CR = City and Region)
 - a single character means only one organization wants the system (e.g., L = Library)

- o **Host** - is the likely host processor on which this system could run. Because there is a multiplicity of systems alternatives in the HGG, more than one choice is often flagged. The strategy phase will refine the selection of the eventual host computer(s). The various codes and sub headings mean:
 - M/F = Mainframe (e.g., City's IBM 4300)
 - Mini = Minicomputer (e.g., Region's VAX or Wang systems)
 - PC = Personal or microcomputer.
- o **Scope** - the applications have been coded according to the potential impact and interest that each project will have for your respective organizations:
 - CORP = any project that was identified by more than two separate departments as a high priority.
 - DEPT = any project ranked by one or two departments as a high priority.
 - PER = are personal applications that pertain mainly to individual tasks (e.g., word processing).

In certain cases, a requirement can have multiple classifications depending on the degree to which the system or application will affect the organization and your various departments (see class 9.00 - Integrated Office Systems).

- o **Mode**- describes the type of processing may be required for the application (O = online, B = Batch or both).

Appendix B contains other secondary classifications that can be helpful in the second phase.

APPLIC. NUMBER	APPLICATION NAME	ORGANIZATION			---	HOST	---	---	SCOPE	---	MODE	
		C	R	L	M/F	MINI	PC	CORP	DEPT	PER	O	B
=====												
1.00	HUMAN RESOURCE SYSTEMS											
=====												
1.01	BENEFITS REPORTING	A	A	A	M/F				DEPT		O	B
1.02	EMPLOYEE DEVELOPMENT TRACKING	A	A	A	M/F				DEPT		O	B
1.03	EMPLOYEE JOB HISTORY	A	A	A	M/F				DEPT		O	B
1.04	POSITION/COMPLEMENT CONTROL	A	A	A	M/F				DEPT		O	B
1.05	APPLICANT FLOW/TRACKING	CR	CR		M/F				DEPT		O	B
1.06	INJURY/ACCIDENT REPORTING	CR	CR		M/F				DEPT		O	B
1.07	LABOUR RELATIONS	CR	CR		M/F				DEPT		O	B
1.08	ONLINE PERSONNEL INQUIRY	A	A	A	M/F				DEPT		O	
1.09	REPORT/SCREEN GENERATOR	CR	CR		M/F				DEPT		O	B
1.10	PAYROLL SUBSYSTEM REWRITE	CR	CR		M/F			CORP			O	B
1.11	DIRECT BANK DEPOSIT	CR	CR		M/F			CORP			O	B
1.12	RECORD OF EMPLOYMENT REPORTING	CR	CR		M/F				DEPT		O	B
1.13	LABOUR DISTRIBUTION	CR	CR		M/F				DEPT		B	B
1.14	WORKMEN'S COMPENSATION REPORTS	CR	CR		M/F			CORP			O	B
1.15	ATTENDANCE COSTING	A	A	A	M/F				DEPT		O	B
=====												
2.00	PROPERTY BASED SYSTEMS											
=====												
2.01	COMPLAINT/INSPECTION/ORDER TRACKING	CR	CR		M/F	MINI		CORP			O	B
2.02	TAXATION REWRITE	CR	CR		M/F			CORP			O	B
2.03	PROPERTY ACQUISITION CONTROL	CR	CR		M/F	MINI		CORP			O	B
2.04	APPLICATION/PERMIT TRACKING	CR	CR		M/F			CORP			O	B
2.05	PROPERTY PROFILE/LAND USE DATA BASE	CR	CR		M/F	MINI		CORP			O	
2.06	ASSESSMENT MONITORING/TRACKING	CR	CR		M/F	MINI		CORP				B
2.07	ENCROACHMENTS	CR	CR		M/F	MINI		CORP			O	B
2.08	LAND RELATED INFORMATION SYSTEM	CR	CR		M/F	MINI		CORP			O	B
2.09	GEO-CODED MAPPING SYSTEMS	CR	CR		M/F	MINI		CORP			O	B
2.10	ROAD / STREETS NEEDS/INVENTORY	CR	CR		M/F	MINI		CORP			O	B

APPLIC. NUMBER	APPLICATION NAME	ORGANIZATION			HOST		CORP		SCOPE		MODE	
		C	R	L	M/F	MINI	PC	CORP	DEPT	PER	O	B
=====	=====	---	---	---	---	---	---	---	---	---	---	---
3.00	OPERATIONS MANAGEMENT SYSTEMS											
3.01	INVENTORY/PURCHASING/BILLING	CR	CR		M/F	MINI		CORP			O	B
3.02	FLEET MANAGEMENT/BILLING	CR	CR		M/F	MINI		CORP			O	B
3.03	ONLINE MMS PAYROLL / BILLING	CR	CR		M/F	MINI		CORP			O	B
3.04	CAPITAL SUBSIDY PROGRAM MGMT	CR	CR		M/F	MINI		CORP			O	B
3.05	SEWER/WATER MAINTENANCE	CR	CR		M/F	MINI			DEPT		O	B
3.06	REPORT/SCREEN GENERATOR	CR	CR		M/F	MINI			DEPT		O	B
3.07	FLEET MAINTENANCE/SCHEDULER	CR	CR		M/F	MINI		CORP			O	B
=====	=====											
4.00	ADMINISTRATIVE/PUBLIC SERVICE											
=====	=====											
4.01	ELECTIONS MANAGEMENT	CL		CL	M/F				DEPT		O	B
4.02	ONLINE BYLAW INQUIRY	A	A	A	M/F			CORP			O	
4.03	CIVIC LAW ONLINE CROSS REFERENCE	CR	CR		M/F	MINI	PC		DEPT		O	
4.04	FACILITIES MANAGEMENT		RL	RL	M/F	MINI			DEPT		O	B
4.05	PUBLIC EVENTS CALENDAR		RL	RL	M/F	MINI		CORP			O	B
4.06	ONLINE MAILING SYSTEM	A	A	A	M/F	MINI	PC	CORP			O	
4.07	COMMUNITY QUERY SYSTEM	A	A	A	M/F			CORP			O	
4.08	MESSAGING/ELECTRONIC MAIL	A	A	A	M/F		PC	CORP			O	
4.09	CALENDARING/SCHEDULING	A	A	A	M/F	MINI		CORP			O	
4.10	TEXT/GRAPHICS INTEGRATION	A	A	A	M/F	MINI	PC	CORP			O	
=====	=====											
5.00	COMMUNITY SERVICE SYSTEMS											
=====	=====											
5.01	BUDGET/FINANCIAL ACCOUNTING SYSTEM	CR	CR		M/F	MINI	PC	CORP			O	B
5.02	CLIENT PROFILE ANALYSIS	CR	CR		M/F	MINI		CORP			O	B
5.03	CASE PLANNING/MANAGEMENT	CR	CR		M/F	MINI		CORP			O	B

PAGE 3/6

APPLIC. NUMBER	APPLICATION NAME	ORGANIZATION			HOST		SCOPE		MODE			
		C	R	L	M/F	MINI	PC	CORP	DEPT	PER	O	B
=====												
5.00	COMMUNITY SERVICE SYSTEMS (cont.)											
=====												
5.04	TRUST ACCOUNTING	CR	CR		M/F	MINI	PC	CORP			O	B
5.05	PATIENT CARE-PHARMACY, DIETARY		R			MINI	PC		DEPT		O	B
5.06	PATIENT CARE-ADT/MEDICAL RECORDS		R			MINI	PC		DEPT		O	B
5.07	SERVICES FOR THE ELDERLY		R			MINI	PC		DEPT		O	B
5.08	SERVICES FOR THE ELDERLY		R			MINI	PC		DEPT		O	B
5.09	NURSE/STAFF SCHEDULING		R			MINI	PC		DEPT		O	B
5.10	LODGE RECORD KEEPING		R			MINI	PC		DEPT		O	B
5.11	PROGRAM BUDGETING	CR	CR		M/F	MINI	PC	CORP			O	B
5.12	PERFORMANCE MEASMT. & EVALN.	CR	CR		M/F	MINI	PC	CORP			O	B
5.13	COMPREHENSIVE INCOME MAINTENANCE SYSTEM	CR	CR		M/F	MINI	PC	CORP			O	B
5.14	FOLLOWUP SYSTEM	CR	CR		M/F	MINI	PC	CORP			O	B
5.15	A/R OVERPAYMENT SYSTEM	CR	CR		M/F	MINI	PC	CORP			O	B
5.16	SERVICES/CONTACT DIRECTORY	CR	CR		M/F	MINI		CORP			O	
5.17	EMERGENCY SERVICES DIRECTORY	CR	CR		M/F	MINI		CORP			O	
5.18	FORECASTING/MODELLING SYSTEM	CR	CR		M/F	MINI		CORP			O	B
5.19	REFERRAL SERVICE/BILLING SYSTEM	CR	CR		M/F	MINI		CORP			O	B
5.20	HANDICAP PARKING PERMIT SYSTEM	CR	CR		M/F	MINI	PC		DEPT		O	B
5.21	SOCIAL SERVICES CATALOG & INDEX	CR	CR		M/F	MINI	PC	CORP			O	B
5.22	TELIDON MIN EDUC CAREER GUIDANCE			L	M/F				DEPT		O	
5.23	MEDICAL STUDENT CASE INDEX	CR	CR		M/F	MINI		CORP			O	B
5.24	EMPLOYER INDEX	CR	CR		M/F	MINI		CORP			O	B

=====

6.00 FINANCIAL SYSTEMS

=====

6.01 CAPITAL BUDGETING

6.02 CURRENT BUDGETING

6.03 MULTI-LEVEL BUDGETING

6.04 CHARGEBACK JOURNAL SYSTEM

O B
O B
O B
BCORP
CORP
CORP
DEPTPC
PC
PC
MINI

A A A A A A A A

A A A A A A A A

A A A A A A A A

A A A A A A A A

APPLIC. NUMBER	APPLICATION NAME	ORGANIZATION			--- HOST ---		--- CORP ---		SCOPE		MODE	
		C	R	L	M/F	MINI	PC	CORP	DEPT	PER	O	B
6.00	FINANCIAL SYSTEMS (cont.)											
6.05	ONLINE ENCUMBRANCE ACCOUNTING	A	A	A	M/F	MINI		CORP			O	
6.06	VARIANCE REPORTING SYSTEM	A	A	A	M/F	MINI		CORP				B
6.07	DEBENTURE MANAGEMENT SYSTEM	A	A	A	M/F	MINI	PC		DEPT			B
6.08	FINANCE POLICY/PROCEDURE INQUIRY	A	A	A	M/F	MINI		CORP			O	B
6.09	FACILITY ASSET MANAGEMENT	A	A	A	M/F	MINI	PC	CORP			O	B
6.10	PROPERTY MANAGEMENT SYSTEM	A	A	A	M/F	MINI	PC	CORP			O	B
6.11	ENCROACHMENTS SYSTEM	A	A	A	M/F	MINI			DEPT		O	B
6.12	INTEGRATED ACCOUNTS PAYABLE	A	A	A	M/F	MINI		CORP			O	B
6.13	CASH MANAGEMENT SYSTEM	A	A	A	M/F	MINI	PC	CORP			O	B
6.14	PENSION REWRITE	A	A	A	M/F	MINI			DEPT		O	B
6.15	ACCOMPLISHMENT/PERFORMANCE SYSTEM		R			MINI		CORP			O	B
6.16	JOB COSTING SYSTEM		R			MINI		CORP			O	B
6.17	ELECTRONIC CASH REGISTERS	A	A	A			PC		DEPT			B
6.18	METERED WATER SYSTEM REWRITE	CR	CR		M/F	MINI	PC		DEPT		O	B
6.19	SECURITIES MANAGEMENT SYSTEM	CR	CR		M/F	MINI	PC		DEPT		O	B
6.20	SUBSIDY MANAGEMENT SYSTEM	A	A	A	M/F	MINI	PC		DEPT		O	B
6.21	EQUIPMENT ASSET MANAGEMENT	A	A	A	M/F	MINI	PC	CORP			O	B
7.00	SYSTEMS DEVELOPMENT TOOLS/AIDS											
7.01	RESOURCE/CAPACITY PLANNING SYS.	A	A	A			PC		DEPT			B
7.02	CHARGEBACK ACCOUNTING SYSTEM	A	A	A	M/F		PC		DEPT			B
7.03	DATA BASE STANDARDS	A	A	A	M/F			CORP			O	B
7.04	FOURTH GENERATION LANGUAGE	A	A	A	M/F		PC	CORP	DEPT	PER	O	B
7.05	LOCAL AREA NETWORK	A	A	A	M/F	MINI		CORP	DEPT	PER	O	
7.06	DSS/GRAPHICS PACKAGE	A	A	A	M/F		PC	CORP	DEPT	PER	O	
7.07	COMPUTER BASED TRAINING SYSTEMS	A	A	A	M/F		PC	CORP			O	

PAGE 5/6

APPLIC. NUMBER	APPLICATION NAME	ORGANIZATION		M/F	HOST	PC	CORP	SCOPE	PER	MODE
		C	R	L	MINI	PC		DEPT		O B
8.00	LIBRARY SYSTEMS									
8.01	CODOC TO DOBIS			L	M/F		CORP			O B
8.02	CIRCULATION-RELIABILITY			L	M/F		CORP			O
8.03	CIRCULATION-PORTABLE SCANNER			L	M/F		CORP			O
8.04	CIRCULATION-DEWEY LIST			L	M/F		CORP			O
8.05	CIRCULATION-PATRON CARDS			L	M/F		CORP			O
8.06	CATALOGUING-UTLAS/DOBIS			L	M/F		CORP			O
8.07	CATALOGUING-UNIVERSITY/ALBERTA AUTHOURITIES			L	M/F		CORP			O
8.08	CATALOGUING-RECORD CREATION			L	M/F		CORP			O
8.09	ACQUISITIONS-ONLINE			L	M/F		CORP			O
8.10	ACQUISITION-ELECTRONIC ORDERING			L	M/F		CORP			O
8.11	ACQUISITIONS-FUND ACCOUNTING			L	M/F	PC	CORP			O
8.12	ACQUISITIONS-SERIALS CONTROL			L	M/F		CORP			O
8.13	PUBLIC ACCESS-PUBLIC TERMINALS			L	M/F		CORP			O
8.14	PUBLIC ACCESS-INTEGRATED CATALOGUE			L	M/F		CORP			O
8.15	EXTENDED HOURS			L	M/F		CORP			O
8.16	FASTER ACCESS			L	M/F		CORP			O
8.17	GOVERNMENT DOCUMENTS			L	M/F		CORP			O
8.18	KEYWORD INDEXES			L	M/F		CORP	DEPT		O
9.00	INTEGRATED OFFICE SYSTEMS (IOS)									
9.01	IOS-WORD PROCESSING	A	A	A	M/F	PC	CORP	DEPT	PER	O
9.02	IOS-EDITABLE DOCUMENT EXCHANGE (DCA/DIA)	A	A	A	M/F	PC	CORP	DEPT	PER	O
9.03	IOS-PC INTERFACE TO WORD PROCESSORS	A	A	A	M/F	PC	CORP	DEPT	PER	O
9.04	IOS-GRAPHICS/TEXT INTEGRATION	A	A	A	M/F	PC	CORP	DEPT	PER	O
9.05	IOS-LASER PRINTER INTERFACE	A	A	A	M/F	PC	CORP	DEPT	PER	O
9.06	IOS-COMMUNICATIONS TO TYPESETTER	A	A	A	M/F	PC	CORP	DEPT	PER	B
9.07	IOS-ELECTRONIC MAIL/MESSAGING	A	A	A	M/F	PC	CORP	DEPT	PER	O

PAGE 6/6

APPLIC. NUMBER	APPLICATION NAME	ORGANIZATION			---	HOST	---	PC	---	CORP	---	SCOPE	---	MODE	
		C	R	L	M/F	MINI						DEPT	PER	O	B
=====															
9.00	INTEGRATED OFFICE SYSTEMS (cont.)														
=====															
9.08	IOS-PERSONAL CALENDARING	A	A	A	M/F	MINI	PC		CORP		DEPT	PER		O	
9.09	IOS-FACILITY SCHEDULING/BOOKING	A	A	A	M/F	MINI	PC		CORP		DEPT	PER		O	
9.10	IOS-COMPUTER OUTPUT MICROFILM (COM)	A	A	A	M/F	MINI	PC		CORP		DEPT			O	B
9.11	IOS-DOC. CLASSIFICATION/RETRIEVAL	A	A	A	M/F	MINI	PC		CORP		DEPT	PER		O	
9.12	IOS-END USER PERSONAL COMPUTING	A	A	A	M/F	MINI	PC		CORP		DEPT	PER		O	B
9.13	IOS-PUBLIC DATA BASES	A	A	A	M/F	MINI	PC		CORP		DEPT	PER		O	
9.14	IOS-REPORT/SCREEN GENERATOR	A	A	A	M/F	MINI	PC		CORP		DEPT	PER		O	B
9.15	IOS-STATISTICAL PACKAGE	A	A	A	M/F	MINI	PC		CORP		DEPT	PER		O	B
9.16	IOS-FOLLOWUP/POST DATE SYSTEM	A	A	A	M/F	MINI	PC		CORP		DEPT	PER		O	
9.17	IOS-PROJECT MANAGEMENT SYSTEM	A	A	A	M/F	MINI	PC		CORP		DEPT	PER		O	
=====															
10.00	MISCELLANEOUS DEPARTMENTAL SYSTEMS														
=====															
10.01	COMPUTER AIDED DISPATCH	CR	CR		M/F				CORP					O	
10.02	INCIDENT STATISTICS	C			M/F						DEPT			O	B
10.03	HAZARDOUS MATERIALS	C			M/F	MINI			CORP		DEPT			O	
10.04	TICKET RESERVATION SYSTEM	C			M/F	MINI					DEPT			O	B

APPENDIX B
SECONDARY CHARACTERISTICS OF PROJECTS

APPENDIX B - SECONDARY CHARACTERISTICS OF PROJECTS

In this appendix, Exhibit B.1, overleaf, highlights secondary characteristics of your various projects. We have not reviewed these classifications with any experienced users or systems professionals, nor are we planning to in this phase. This material will need to be critiqued by each organization before it can be used as background to any strategy analysis.

CLASSIFICATION METHOD AND CODES

This preliminary analysis looks at your requirements from three additional perspectives - potential benefits, possible development strategies and opportunities to use common information systems (I.S.) resources:

- **Benefits** - under four sub-headings, we outline the possible benefits for each project that could result from a properly designed and implemented system. The four codes are:
 - P = productivity savings
 - S = service benefits to users or the public
 - D = information for decision making
 - O = other (legislative, public health/safety).
- **Build/Buy** - under these two sub-headings (where C = custom development and P = package purchase), we identify the likely development strategy option(s).
- **Common I.S. Resources** - we have projected under five categories where each project may be able to share common I.S. resources, including:
 - H = hardware
 - S = software
 - N = network
 - P = people
 - D = data bases.

The strategy development phase will look at these issues in more detail for each project. This material will form some of the background for the discussion and analysis in that phase.

PAGE 1/6

APPLIC. NUMBER	APPLICATION NAME	- COMMON I.S. RESOURCES -												
		BENEFITS				BUILD/BUY								
		---	P	S	D	O	---	C	P	H	S	N	P	D
=====	-----	---	---	---	---	---	---	---	---	---	---	---	---	---
1.00	HUMAN RESOURCE SYSTEMS													
=====	=====													
1.01	BENEFITS REPORTING	P	S	D	O			P		H	S	N	P	D
1.02	EMPLOYEE DEVELOPMENT TRACKING	P		D				P		H	S	N	P	D
1.03	EMPLOYEE JOB HISTORY	P		D				P		H	S	N	P	D
1.04	POSITION/COMPLEMENT CONTROL	P		D				P		H	S	N	P	D
1.05	APPLICANT FLOW/TRACKING	P		D				P		H	S	N	P	D
1.06	INJURY/ACCIDENT REPORTING	P		D				P		H	S	N	P	D
1.07	LABOUR RELATIONS	P		D				P		H	S	N	P	D
1.08	ONLINE PERSONNEL INQUIRY	P	S	D				P		H	S	N	P	D
1.09	REPORT/SCREEN GENERATOR	P	S	D				P		H	S	N	P	D
1.10	PAYROLL SUBSYSTEM REWRITE	P		D				P		H	S	N	P	D
1.11	DIRECT BANK DEPOSIT	P	S	D				P		H	S	N	P	D
1.12	RECORD OF EMPLOYMENT REPORTING	P						P		H	S	N	P	D
1.13	LABOUR DISTRIBUTION	P		D				P		H	S	N	P	D
1.14	WORKMEN'S COMPENSATION REPORTS	P	S	D				P		H	S	N	P	D
1.15	ATTENDANCE COSTING	P						P		H	S	N	P	D
=====	=====													
2.00	PROPERTY BASED SYSTEMS													
=====	=====													
2.01	COMPLAINT/INSPECTION/ORDER TRACKING	P	S	D	O			C		H	S	N		D
2.02	TAXATION REWRITE	P	S	D	O			C		H	S	N		D
2.03	PROPERTY ACQUISITION CONTROL	P	S	D				C		H	S	N	P	D
2.04	APPLICATION/PERMIT TRACKING	P		D	O			C		H		N		D
2.05	PROPERTY PROFILE/LAND USE DATA BASE	P	S	D	O			C	P	H	S	N	P	D
2.06	ASSESSMENT MONITORING/TRACKING	P	S		O			C		H		N		D
2.07	ENCROACHMENTS	P	S		O			C		H		N		D
2.08	LAND RELATED INFORMATION SYSTEM	P	S	D	O			C	P	H	S	N	P	D
2.09	GEO-CODED MAPPING SYSTEMS	P	S	D	O			P		H	S	N	P	D
2.10	ROAD / STREETS NEEDS/INVENTORY	P	S	D	O			C		H	S	N	P	D

PAGE 2/6

APPLIC. NUMBER	APPLICATION NAME	BENEFITS				BUILD/BUY	COMMON I.S. RESOURCES						
		P	S	D	O		C	P	H	S	N	P	D
=====													
3.00	OPERATIONS MANAGEMENT SYSTEMS												
=====													
3.01	INVENTORY/PURCHASING/BILLING	P	S	D		C		H	S	N	P	D	
3.02	FLEET MANAGEMENT/BILLING	P	S	D		C		H	S	N	P	D	
3.03	ONLINE MMS PAYROLL / BILLING	P	S			C		H	S	N	P	D	
3.04	CAPITAL SUBSIDY PROGRAM MGMT	P	S	D	O	C		H	S	N	P	D	
3.05	SEWER/WATER MAINTENANCE	P	S	D		C	P	H	S	N		D	
3.06	REPORT/SCREEN GENERATOR	P	S	D			P	H	S	N		D	
3.07	FLEET MAINTENANCE/SCHEDULER	P	S	D		C		H	S	N	P		
=====													
4.00	ADMINISTRATIVE/PUBLIC SERVICE												
=====													
4.01	ELECTIONS MANAGEMENT	P	S		O	C				N		D	
4.02	ONLINE BYLAW INQUIRY	P	S	D	O		P	H	S	N		D	
4.03	CIVIC LAW ONLINE CROSS REFERENCE	P	S	D	O		P		S			D	
4.04	FACILITIES MANAGEMENT	P	S	D		C		H		N		D	
4.05	PUBLIC EVENTS CALENDAR		S				P	H	S	N		D	
4.06	ONLINE MAILING SYSTEM	P	S				P	H	S	N		D	
4.07	COMMUNITY QUERY SYSTEM		S			C	P	H	S	N		D	
4.08	MESSAGING/ELECTRONIC MAIL	P	S				P	H	S	N		D	
4.09	CALENDARING/SCHEDULING	P	S				P	H					
4.10	TEXT/GRAPHICS INTEGRATION	P	S				P	H	S	N		D	
=====													
5.00	COMMUNITY SERVICE SYSTEMS												
=====													
5.01	BUDGET/FINANCIAL ACCOUNTING SYSTEM	P	S	D			P	H	S	N	P	D	
5.02	CLIENT PROFILE ANALYSIS	P	S	D		C	P	H	S	N		D	
5.03	CASE PLANNING/MANAGEMENT	P	S	D		C	P	H	S	N		D	

PAGE 3/6

APPLIC. NUMBER	APPLICATION NAME	BENEFITS				BUILD/BUY		COMMON I.S. RESOURCES				
		P	S	D	O	C	P	H	S	N	P	D
=====												
5.00	COMMUNITY SERVICE SYSTEMS (cont.)											
=====												
5.04	TRUST ACCOUNTING	P	S				P	H	S	N		D
5.05	PATIENT CARE-PHARMACY, DIETARY	P	S	D	O		P		S			
5.06	PATIENT CARE-ADT/MEDICAL RECORDS	P	S	D	O		P		S			
5.07	SERVICES FOR THE ELDERLY	P	S	D			P	H				
5.08	SERVICES FOR THE ELDERLY	P	S	D			P	H				
5.09	NURSE/STAFF SCHEDULING	P	S	D	O		P		S			
5.10	LODGE RECORD KEEPING	P	S	D		C	P	H				
5.11	PROGRAM BUDGETING	P	S	D		C	P	H	S	N	P	D
5.12	PERFORMANCE MEASMT. & EVALN.	P	S	D		C	P	H	S	N		D
5.13	COMPREHENSIVE INCOME MAINTENANCE SYSTEM			D	O	C	P	H	S	N		D
5.14	FOLLOWUP SYSTEM	P	S	D			P	H	S	N		D
5.15	A/R OVERPAYMENT SYSTEM	P		D		C	P	H		N		D
5.16	SERVICES/CONTACT DIRECTORY	P	S	D			P	H	S	N		D
5.17	EMERGENCY SERVICES DIRECTORY	P	S	D			P	H	S	N		D
5.18	FORECASTING/MODELLING SYSTEM	P	S	D			P	H	S	N	P	D
5.19	REFERRAL SERVICE/BILLING SYSTEM	P	S	D		C	P	H	S	N		D
5.20	HANDICAP PARKING PERMIT SYSTEM	P	S	D		C	P	H		N		D
5.21	SOCIAL SERVICES CATALOG & INDEX	P	S	D			P	H	S	N		D
5.22	TELIDON MIN EDUC CAREER GUIDANCE		S				P					
5.23	MEDICAL STUDENT CASE INDEX	P	S	D		C	P	H	S	N		D
5.24	EMPLOYER INDEX	P	S	D		C	P	H	S	N		D
=====												
6.00	FINANCIAL SYSTEMS											
=====												
6.01	CAPITAL BUDGETING	P	S	D			P	H	S	N	P	D
6.02	CURRENT BUDGETING	P	S	D			P	H	S	N	P	D
6.03	MULTI-LEVEL BUDGETING	P	S	D			P	H	S	N	P	D
6.04	CHARGEBACK JOURNAL SYSTEM	P	S				P	H	S	N	P	D

EXHIBIT B.1 - SECONDARY CHARACTERISTICS OF SYSTEM PROJECTS

PAGE 4/6

APPLIC. NUMBER	APPLICATION NAME	BENEFITS				BUILD/BUY		COMMON I.S. RESOURCES -				
		P	S	D	O	C	P	H	S	N	P	D
=====	=====											
6.00	FINANCIAL SYSTEMS (cont.)											
=====	=====											
6.05	ONLINE ENCUMBRANCE ACCOUNTING	P	S	D			P	H	S	N	P	D
6.06	VARIANCE REPORTING SYSTEM	P	S	D		C		H	S	N		D
6.07	DEBENTURE MANAGEMENT SYSTEM	P	S	D			P	H	S	N	P	D
6.08	FINANCE POLICY/PROCEDURE INQUIRY	P	S				P	H	S	N		D
6.09	FACILITY ASSET MANAGEMENT	P	S	D			P	H	S	N	P	D
6.10	PROPERTY MANAGEMENT SYSTEM	P	S	D			P	H	S	N	P	D
6.11	ENCROACHMENTS SYSTEM	P	S	D			P	H	S	N	P	D
6.12	INTEGRATED ACCOUNTS PAYABLE	P	S				P	H	S	N	P	D
6.13	CASH MANAGEMENT SYSTEM	P	S	D			P		S	N	P	D
6.14	PENSION REWRITE	P	S	D			P	H	S	N	P	D
6.15	ACCOMPLISHMENT/PERFORMANCE SYSTEM	P	S	D			P	H		N		D
6.16	JOB COSTING SYSTEM	P	S	D			P	H		N		D
6.17	ELECTRONIC CASH REGISTERS	P					P	H	S	N	P	D
6.18	METERED WATER SYSTEM REWRITE	P	S	D		C	P			N		D
6.19	SECURITIES MANAGEMENT SYSTEM	P	S	D		C	P			N		D
6.20	SUBSIDY MANAGEMENT SYSTEM	P	S	D		C	P			N		D
6.21	EQUIPMENT ASSET MANAGEMENT	P	S	D			P	H	S	N	P	D
=====	=====											
7.00	SYSTEMS DEVELOPMENT TOOLS/AIDS											
=====	=====											
7.01	RESOURCE/CAPACITY PLANNING SYS.	P		D		C	P					
7.02	CHARGEBACK ACCOUNTING SYSTEM	P				C	P					
7.03	DATA BASE STANDARDS	P					P	H	S	N	P	D
7.04	FOURTH GENERATION LANGUAGE	P	S				P	H	S	N		D
7.05	LOCAL AREA NETWORK	P	S				P	H	S	N		D
7.06	DSS/GRAPHICS PACKAGE	P					P	H	S	N		D
7.07	COMPUTER BASED TRAINING SYSTEMS	P					P				P	

PAGE 5/6

APPLIC. NUMBER	APPLICATION NAME	BENEFITS			BUILD/BUY			COMMON I.S. RESOURCES -				
		P	S	D	O	C	P	H	S	N	P	D
=====												
8.00	LIBRARY SYSTEMS											
=====												
8.01	CODOC TO DOBIS	P	S			C	P	H	S	N	P	D
8.02	CIRCULATION-RELIABILITY	P	S				P	H	S	N	P	D
8.03	CIRCULATION-PORTABLE SCANNER	P	S				P	H	S	N	P	D
8.04	CIRCULATION-DEWEY LIST	P	S				P	H	S	N	P	D
8.05	CIRCULATION-PATRON CARDS	P	S				P	H	S	N	P	D
8.06	CATALOGUING-UTLAS/DOBIS	P	S				P	H	S	N	P	D
8.07	CATALOGUING-UNIVERSITY/ALBERTA AUTHOURITIES	P	S				P	H	S	N	P	D
8.08	CATALOGUING-RECORD CREATION	P	S				P	H	S	N	P	D
8.09	ACQUISITIONS-ONLINE	P	S	D			P	H	S	N	P	D
8.10	ACQUISITION-ELECTRONIC ORDERING	P	S	D			P	H	S	N	P	D
8.11	ACQUISITIONS-FUND ACCOUNTING	P	S	D			P	H	S	N	P	D
8.12	ACQUISITIONS-SERIALS CONTROL	P	S	D			P	H	S	N	P	D
8.13	PUBLIC ACCESS-PUBLIC TERMINALS	P	S				P	H	S	N	P	D
8.14	PUBLIC ACCESS-INTEGRATED CATALOGUE	P	S				P	H	S	N	P	D
8.15	EXTENDED HOURS	P	S				P	H	S	N	P	D
8.16	FASTER ACCESS	P	S				P	H	S	N	P	D
8.17	GOVERNMENT DOCUMENTS	P	S				P	H	S	N	P	D
8.18	KEYWORD INDEXES	P	S	D			P	H	S	N	P	D
=====												
9.00	INTEGRATED OFFICE SYSTEMS (IOS)											
=====												
9.01	IOS-WORD PROCESSING	P	S				P	H	S	N		D
9.02	IOS-EDITABLE DOCUMENT EXCHANGE (DCA/DIA)	P	S				P	H	S	N		D
9.03	IOS-PC INTERFACE TO WORD PROCESSORS	P	S				P	H	S	N		D
9.04	IOS-GRAPHICS/TEXT INTEGRATION	P	S				P	H	S	N		D
9.05	IOS-LASER PRINTER INTERFACE	P	S				P	H	S	N		D
9.06	IOS-COMMUNICATIONS TO TYPESETTER	P	S				P	H	S	N		D
9.07	IOS-ELECTRONIC MAIL/MESSAGING	P	S				P	H	S	N		D

APPLIC. NUMBER	APPLICATION NAME	--- BENEFITS ---				BUILD/BUY		- COMMON I.S. RESOURCES -				
		P	S	D	O	C	P	H	S	N	P	D
=====	=====											
9.00	INTEGRATED OFFICE SYSTEMS (cont.)											
=====	=====											
9.08	IOS-PERSONAL CALENDARING	P	S	D			P	H	S	N		D
9.09	IOS-FACILITY SCHEDULING/BOOKING	P	S	D			P	H	S	N		D
9.10	IOS-COMPUTER OUTPUT MICROFILM (COM)	P	S				P	H	S	N		
9.11	IOS-DOC. CLASSIFICATION/RETRIEVAL	P	S	D			P	H	S	N		D
9.12	IOS-END USER PERSONAL COMPUTING	P	S	D		C	P	H	S	N	P	D
9.13	IOS-PUBLIC DATA BASES	P	S	D			P	H		N		
9.14	IOS-REPORT/SCREEN GENERATOR	P	S	D			P	H	S	N	P	D
9.15	IOS-STATISTICAL PACKAGE	P	S	D			P	H	S	N	P	D
9.16	IOS-FOLLOWUP/POST DATE SYSTEM	P	S	D			P	H	S	N	P	D
9.17	IOS-PROJECT MANAGEMENT SYSTEM	P	S	D			P	H	S	N	P	D
=====	=====											
10.00	MISCELLANEOUS DEPARTMENTAL SYSTEMS											
=====	=====											
10.01	COMPUTER AIDED DISPATCH	P	S	D	O	C		H		N		D
10.02	INCIDENT STATISTICS	P	S	D		C		H		N		D
10.03	HAZARDOUS MATERIALS	P	S	D	O	C		H		N		D
10.04	TICKET RESERVATION SYSTEM	P	S				P					

APPENDIX C
PROJECT DESCRIPTIONS

APPENDIX C

SYSTEM PROJECT DESCRIPTIONS

The project descriptions shown in this appendix correspond to the application names shown in Appendices A and B. We have tried as much as possible to maintain consistency with the functional workshop descriptions developed by J. Hindson. In the cases where we have identified other projects (e.g., Library Systems), we have developed our own descriptions.

1.00 - HUMAN RESOURCE SYSTEMS

1.01 - Benefits Reporting

The extended recording and reporting of employee benefits including the generation of a comprehensive employee benefits statement.

1.02 - Employee Development Tracking

The recordkeeping of employee education, training and skills information for career path and workforce utilization purposes.

1.03 - Employee Job History

The retention of pertinent information on each employee for the purposes of meeting governmental and historical employee reporting requirements.

1.04 - Position/Complement Control

The maintenance of an inventory of the status of all positions within the organization.

1.05 - Applicant Flow/Tracking

The compilation and organization of information obtained from job applicants for selection and control purposes.

1.06 - Injury/Accident Recording

The recordkeeping of all work-related injuries and accidents, including the monitoring of employees exposed to toxic chemicals or other hazardous substances.

1.07 - Labour Relations

The recording and reporting on events that relate to negotiated union contracts; such as tracking seniority, reporting on grievance and arbitration results and disciplinary actions, etc.

1.08 - Online Personnel Inquiry

Extend user access capability to users who have a demonstrated need for access to information online.

1.09 - Report/Screen Generator

Provide users with the capability of designing and generating ad hoc reports or access screens based on information available in machine-readable form.

1.10 - Payroll Subsystem Rewrite

Rewrite all payroll subsystems that are driven by the Payroll Master.

1.11 - Direct Bank Deposit

Implement direct deposit banking.

1.12 - Record of Employment Reporting

Produce the Canadian Record of Employment for terminated employees as required by Canada Employment and Immigration.

1.13 - Labour Distribution

Implement labour distribution reporting at the activity, program, or project level.

1.14 - Attendance Costing

A cost reporting system for all absence types inclusive of long term disability.

2.00 - PROPERTY-BASED SYSTEMS

2.01 - Complaints/Inspections/Orders and Tracking

Transactions related to inspections, complaints, orders and follow-up status for properties and businesses.

2.02 - Taxation Rewrite

Rewrite of the Business and Realty Tax systems.

2.03 - Property Acquisition and Control

Up-to-date information on properties that have been acquired for municipal purposes including property description, use, rental or lease information, maintenance expenses and profit/loss statement.

2.04 - Applications/Permits Tracking

Recording and tracking of the status of building, planning or other application and permit systems. Generate further action documents as may be required.

2.05 - Property Profile/Land Use Data Base

The recording of information concerning a property including location, physical attributes, survey information, zoning, assessment, land-use nearest fire hydrant location, etc.

2.06 - Assessment Monitoring/Tracking

Assist with the identification of new or additional taxation revenue sources through the monitoring and reporting of changes to properties or property uses that would result in a change in assessed value.

2.07 - Encroachments

To record encroachments on Municipal property and interface rental or lease payments and changes in rates with Accounts Receivable.

2.08 - Land-Related Information System

An information system based on the geographic identification of features (geo-coding).

2.09 - Geo-Coded Mapping systems

A multi-use graphics display and plotting system designed to generate maps of geo-coded LRIS data (see 2.08 above) for a variety of purposes including planning, engineering, legal, public safety, utilities, etc.

2.10 - Road/Streets Needs/Inventory

An update of the existing streets inventory system.

3.00 - OPERATIONS MANAGEMENT SYSTEMS

3.01 - Inventory/Purchasing/Billing Management

An inventory system including EOQ, MRP information, notification to reorder, tracking of purchase orders and invoicing for material released from inventory. Interfaces needed with other Department inventories.

3.02 - Fleet Management/Invoicing

The management of maintenance services performed on vehicle fleets including the recording, analysis and monitoring of preventive maintenance services, fleet acquisition, maintenance operations, depreciation costs and revenue generated. Include profit/loss statement at vehicle level.

3.03 - On-line MMS Payroll/Billing

Enhancements to the existing Maintenance Management Systems to eliminate the multiple recording of employee labour hours for payroll purposes.

3.04 - Capital Subsidy Program Management

Management of the Capital Subsidy Program to optimize the utilization of Provincial Government subsidy funds and make immediate adjustments to programs or projects in response to funding availability.

3.05 - Sewer/Water Maintenance Records

Maintenance records and monitoring of maintenance activities for the sewer and water distribution system.

3.06 - Report/Screen Generator

Provide users with the capability of designing and generating ad hoc reports or access screens based on information available in machine-readable form.

3.07 - Fleet Maintenance/Scheduler

Enhancements to the Fleet management systems to coordinate the preventive maintenance requirements with vehicle operating schedules.

4.00 - ADMINISTRATIVE/PUBLIC SERVICE SYSTEMS

4.01 - Elections Management

To assist with the administration of information and procedures for conducting Municipal Elections.

4.02 - Online Bylaw Text

The online access to Bylaw text information for the most frequently accessed Municipal bylaws and bylaw schedules.

4.3 - Civil Law Online Cross Reference

An online data base of civil law precedent cross references.

4.04 - Facilities Management

To manage the bookings, scheduling of support services, billings and statistical reporting information requirements for rented Municipal facilities including profit/loss statements.

4.05 - Public Events Calendar

Online access to, and update capability for a Calendar of events and programs scheduled to occur within the Municipality for internal and public queries (e.g., tourism).

4.06 - Online Mailing System

The ability to generate and update mailing lists originating from a Department or extracted from data files with the purpose of "targeting" specific contact industries, businesses or persons.

4.07 - Community Query System

The ability to obtain the answers to common requests for information or information concerning Associations, Agencies or contact persons in the community (e.g., to support elected officials, community information centres, libraries).

4.08 - Messaging and Scheduling

The electronic transmission of messages and the scheduling of meetings.

4.09 - Calendaring/Scheduling

The ability to schedule meetings with personnel and plan personal calendars online.

4.10 - Text and Graphics Integration

The integration of text and graphic information.

5.00 - COMMUNITY SERVICE SYSTEMS

5.01 - Budget/Financial Accounting System

More current encumbrance reporting and the implementation of year-end forecasting models(s).

5.02 - Client Profile Analysis

Profiles and statistical reporting for clients.

5.03 - Case Development Plan/Management

Case profiles including plan, objectives, development, review and follow-up.

5.04 - Trust Accounting

The control and accounting of patient funds held in trust.

5.05 - Patient Care - Pharmacy, Dietary

A system to record and process orders for ancillary services in nursing homes for such items as medication and meals.

5.06 - Patient Care - ADT/Medical Records

A system for handling admission/discharge/transfers (ADT) and medical records of diagnosis and treatment programs for nursing home patients.

5.07 and 5.08 - Services for the Elderly

A system to assist in ordering services (e.g., meals-on-wheels) and keeping records for elderly citizens involved in home care programs. (Note: 5.08 is a duplicate of 5.07 to represent the various types of services which may be required (e.g., VON, etc.).

5.09 - Nurse/Staff Scheduling

A system to assist in scheduling nursing and support staff to minimize labour costs and labour contract violations.

5.10 - Lodge Recordkeeping

A system to manage the financial and administrative records of the lodge.

5.11 - Program Budgeting

A modelling system to assist program managers in developing financial budgets.

5.12 - Performance Measurement and Evaluation

A recording and reporting system to measure performance against department and program objectives.

5.13 - Comprehensive Income Maintenance System (CIMS)

Review of the impacts of, and the changes required to interface with the Provincial Comprehensive Income Maintenance System.

5.14 - Follow-up System

To automatically receive information concerning cases which require attention or follow-up actions at a specific time in the future.

5.15 - Accounts Receivable (Under/Overpayment)

An accounts receivable system to record and follow-up on the recovery of funds as the result of benefit overpayment.

5.16 - Service/Contact Directory

A directory of agencies and contact persons to which clients can be referred.

5.17 - Emergency Services Directory

A directory of emergency services, resources and contact persons for the delivery of necessary services in the event of a disaster.

5.18 - Forecasting/Modelling

Techniques and tools for forecasting and modelling the financial and human resource (caseloads) needed as the result of historical trend information or various funding scenarios.

5.19 - Referral Service/Billing System

Application referrals and billings for counselling services contracted out to outside agencies.

5.20 - Handicap Parking Permit System

The application, verification and annual issue and updating of handicapped parking permits.

5.21 - Social Services Catalogue and Index

A catalogue and index system for reference sources in the Social Service library as well as reports, journals available from other sources.

5.22 - Telidon Ministry of Education Career Guidance

The online Ministry of Education career guidance data base on Telidon for career counselling.

5.23 - Medical Student Case Index

An index system to match students with patients which have the specific medical histories the students wish to study.

5.24 - Employer Index

A cross-index of employers and the types of employment or industry to assist with employment referrals.

6.00 - FINANCIAL SYSTEMS

6.01 - Capital Budgetting

An automated and integrated information system for capital budget preparation, reporting, monitoring and forecasting.

6.02 - Current Budgetting

An automated and integrated information system for current budget preparation, reporting, monitoring and forecasting.

6.03 - Multi-Level Budgeting

Budgetting in higher levels of detail to enable user departments to budget on an activity, program or project level and aggregate information into an object-of-expenditure budget.

6.04 - Chargeback/Rendering System

Streamlined and timely information for handling inter-Departmental charges.

6.05 - Online Encumbrance Accounting

Immediate updating and processing of purchasing and accounting records plus the creation of user-formatted financial and budget statements.

6.06 - Variance Reporting System

To identify accounts that are not experiencing expenditures and/or revenues as planned.

6.07 - Debenture Management

The continuous control, monitoring and administration of debenture issues.

6.08 - Financial Policy/Procedure Inquiry

Maintenance and access to financial policies and procedures in machine-readable form.

6.09 - Fixed Assets Management System

The control and monitoring of all Corporate fixed assets.

6.10 - Property Management System

Management of Municipally-owned properties with respect to their purchase price, description, lease or rental income and operating expenses. profit/loss statement at the property level.

6.11 - Encroachments

The management of encroachments on municipal property including description, billing information and rates and integration with accounts payable.

6.12 - Integrated Accounts Payable

An online accounts payable system designed to integrate with the encumbrance accounting system (see 6.05) that processes purchase invoices, cheques and performs invoice matching to purchase orders.

6.13 - Cash Management System

Monitoring and analysis system to update cash-flow requirements for improved short term investment income. It also includes cashiering and bank deposits of cash receipts.

6.14 - Pension Rewrite

Rewrite outdated and inadequate pension information system.

6.15 - Accomplishment/Performance System

A system to record and report on the accomplishment of departmental and program performance objectives.

6.16 - Job Costing

A system to record and report on operating job costs (e.g., repair orders) and multi-year capital construction projects.

6.17 - Electronic Cash Register

Point-of-transaction updating of accounts.

6.18 - Metered Water Rewrite

Rewrite of outdated and inadequate metered water billing system.

6.19 - Securities Management

The ongoing management and follow-up on the status of securities held by the Corporations in connection with local improvements (or related) activities.

6.20 - Subsidy Management System

The reporting, monitoring and analysis of projects, programs or activities eligible for subsidy with a view to optimizing subsidy revenues.

6.21 - Equipment Asset Management

A system to manage and report on the funding requirements, replacement cycle and inventory of physical assets (vehicles and equipment).

7.00 - SYSTEMS DEVELOPMENT

7.01 - Resource/Capacity Planning

A modelling and forecasting system to assist with Systems resource planning.

7.02 - Chargeback Accounting

A chargeback system for Systems and data processing services.

7.03 - Data Base Standards

A uniform standard or standards for databases used.

7.04 - Fourth Generation Languages

High-level languages (fourth generation) for the development of systems applications by system professionals, and other tools to aid users in accessing, manipulating and reporting from existing data bases or developing departmental systems.

7.05 - Networking Software

Appropriate software to integrate, control and monitor the network. Other software packages to support micro-based local area networks.

7.06 - Decision Support Software/Graphics

Graphics software integrated with decision support software (DSS) for user departments to assist with data analysis, decision-making and reports.

7.07 - Computer-Based Training Systems

The availability of training information and tutorials in a computer-based environment.

8.00 - LIBRARY SYSTEMS

8.01 - CODOC to DOBIS

The ability to access both DOBIS and CODOC files on the same terminal.

8.02 - Circulation - Reliability

Find and fix the bugs in the DOBIS software which causes the terminal network to be unreliable with certain types of transactions.

8.03 - Circulation - Portable Scanner

The purchase and implementation of new replacement portable scanners for the bookmobiles to improve the reliability of transmitting check-in and check-out circulation data at night.

8.04 - Circulation - Dewey List

A printout of the collection by Dewey number, by branch to enable the Library to perform collection analysis.

8.05 - Circulation - Patron Cards

The modifications to DOBIS so that the system will accept pre-labelled patron cards as opposed to having the system automatically assign patron numbers as new records are created.

8.06 - Cataloguing - UTLAS/DOBIS

An online interface between DOBIS and UTLAS to eliminate the need for the weekly transfer of tape records between UTLAS and DOBIS.

8.07 - Cataloguing - Univ/Alberta Authorities

The ability to transfer authority records online using a program developed by the University of Alberta.

8.08 - Cataloguing - Record Creation

The need to tailor the cataloguing module for original record creation (i.e., bibliographic records not contained on UTLAS); expanded installation of terminals to assist cataloguing staff; consider relocating cataloguing staff with acquisitions to build catalogue entries at time of ordering; and clean-up of authority names and cataloguing of HPL original material.

8.09 - Acquisitions - Online

Implementation on a pilot basis of the acquisitions module to allow for online ordering of new titles.

8.10 - Acquisitions - Electronic Ordering

A system to allow for electronic ordering of titles from book publishers and distributors.

8.11 - Acquisitions - Fund Accounting

A system to allow encumbrance fund accounting for book and material (films, records, etc.) purchases.

8.12 - Acquisitions - Serials Control

A system to control the purchasing and renewals for serials (magazines, newspapers, standing orders, yearbooks, reference books, etc.).

8.13 - Public Access - Public Terminals

The system module in DOBIS that allows public access through public terminals either located within the library or remotely to answer questions on collections and circulation.

8.14 - Public Access - Integrated Catalogue

The availability of serials, government documents and audio-visual records, along with books in an integrated catalogue to facilitate public access.

8.15 - Extended Hours

The provision of extended support hours outside of 9:00 a.m. to 5:00 p.m. to facilitate current circulation and ensure the availability of public access on a seven day a week/16 hour a day basis.

8.16 - Faster Access

The ability to allow library staff access to municipal records at the FASTER System at City Hall using a DOBIS terminal.

8.17 - Government Documents

The online access and retrieval on government documents.

8.18 - Keyword Indexes

The ability to index and retrieve documents by key word which, in some cases, will require a commercial information retrieval system such as BASIS.

9.00 - INTEGRATED OFFICE SYSTEMS (IOS)

9.01 - IOS - Word Processing

The expanded use of electronic work stations (either terminals or micro computers or word processors) and the creation of standards to ensure transfer ability of both staff and document files.

9.02 - IOS - Editable Document Exchange

A system to support the transmission of document files with the control codes for editing (e.g., bolding, underscoring, tabs, etc.) imbedded in the documents to allow for the exchange of editable document files between various users.

9.03 - IOS - Interface to Word Processors

A system to allow the exchange of document files between incompatible word processors (mainframe, micro, and stand alone word processors).

9.04 - IOS - Graphics/Text Integration

A system to support the integration of text and graphics easily within a document file.

9.05 - IOS - Laser Printer Interface

A system to support the transmission of document files to a laser printer to produce near-typeset letter quality for high-profile documents (bylaws, minutes and reports to council).

9.06 - IOS - Communications to Typesetters

A system to support the communication of galley proofs with editable control codes and graphics to typesetters.

9.06 - IOS - Electronic Mail/Messaging

A system to support the distribution of internal mail electronically and broadcast messaging to all electronic mail users.

9.08 - IOS - Personal Calendaring

A system to support the creation and maintenance of personal calendars and to allow for booking of group meetings.

9.09 - IOS - Facility Scheduling/Booking

A system to support the booking of key public facilities and meeting rooms.

9.10 - IOS - Computer Output Microfilm (COM)

A system to integrate document and data files to microfilming systems, to create the microfilm index and store it online on central systems.

9.11 - IOS - Document Classification/Retrieval

A system to classify electronic documents by key words and allow the retrieval of documents by key words. (This application software may be applicable also in 8.18 - Library/Keyword Indexes).

9.12 - IOS - End User Personal Computing

Expanded use of microcomputers for end user personal computing and the setting of standards for personal computing software tools (spreadsheets, data file utilities, etc.).

9.13 - IOS - Public Data Bases

The procurement, documenting and use of public data bases for end users.

9.14 - IOS - Report/Screen Generator

Software programs and data dictionaries to support the creation of ad hoc reports and enquiry screens by end users.

9.15 - IOS - Statistical Package

Software packages to support the statistical analysis of survey data and data bases located on mainframes, minicomputers and microcomputers.

9.16 - IOS - Followup/Post Date System

A system to allow for the creation of followup or post date reminders and the production of post date reports and reminder notices.

9.17 - IOS - Project Management System

A system to support the managing of project activities and resources as well as track progress.

10.00 - MISCELLANEOUS DEPARTMENTAL SYSTEMS

10.01 - Computer Aided Dispatch

A system to support the dispatch of emergency vehicles showing location of building and properties, routing, property uses, emergency facilities, ownership, etc.

10.02 - Incident Statistics

A system to record and report on emergency incidents, their cause and outcomes.

10.03 - Hazardous Materials

A system to track the location of hazardous materials for inspection, emergency and environmental purposes.

10.04 - Ticket Reservation System

A system to allow for the reservation of tickets for events at public facilities, plus perform the revenue accounting.

APPENDIX D
INTERVIEWS AND WORKSHOP ATTENDEES

INTERVIEWS

	Official	Department	Organization
N	Adhya	Treasury	City
T	Bradley	Purchasing	City
N	Cooper	Systems	City
W	Cottrell	Parking	City
G	Cuddy	Systems	City
T	Daw	Treasury	City
J	DiBacco	Garage	City
F	Edwards	Systems	City
P	Eker	Solicitor	City
D	Farquhar	Culture and Recreation	City
D	Freeman	Architect	City
A	Grieve	Fire Department	City
R	Hammel	Treasury	City
J	Hindson	Traffic	City
D	Jones	Personnel	City
E	Kowalski	Community Development	City
P	Kuppe	Building	City
J	Lueser	Convention Centre	City
E	Matthews	Treasury	City
R	Morden	Public Works	City
L	Sage	Executive	City
L	Saltmarsh	Fire Department	City
L	Selby	Systems	City
E	Simpson	Clerk	City
R	Turkstra	Hamilton Place	City
D	Vyce	Real Estate	City
P	Baker	Administration	Library
M	Bernardi	Administration	Library
L	Francis	Administration	Library
D	Kilpatrick	Administration	Library
J	McAnanama	Executive	Library
G	Merritt	Administration	Library
J	Smith	Administration	Library
G	Turner	Administration	Library
B	Zommers	Administration	Library
C	Armstrong	Executive	Region
J	Bruzzese	Finance	Region
T	Bunce	Finance	Region
M	Carson	Social Services	Region
C	Carver	Systems	Region
M	Chidley	Engineering	Region
D	Cole	Economic Development	Region
Dr. I	Cunningham	Medical Officer of Health	Region
B	Evans	Finance	Region

INTERVIEWS (cont.)

	Official	Department	Organization
J	Gartner	Planning	Region
L	Kinanen	Social Services	Region
L	Lanza	Planning	Region
G	Lawson	Finance	Region
J	Leach	Engineering	Region
C	Lowe	Personnel	Region
B	Mulholland	Engineering	Region
P	Papp	Social Services	Region
M	Peacock	Internal Audit	Region
E	Pilon	Transportation	Region
R	Plant	Solicitor	Region
M	Schuster	Social Services	Region
H	Schweinbenz	Transportation	Region
S	Spencer	Environmental Services	Region
J	Thoms	Planning	Region
D	Tyler	Finance	Region

FUNCTIONAL WORKSHOP ATTENDEES

Human Resources
Friday, September 6,
9 a.m., Room D
14th Floor
Fairclough Bldg.

Ross Robertson (Systems)
Klaus Kaesler (Systems)
Bill Leonard (Systems)
Judy Savoy (Library)
Margaret Hobbs (Region Personnel)
Doreen Jones (City Personnel)
Eric Pilon (Transportation)
Bob Guest (Transportation)
Leena Kinanen (Social Services)
Lou Lanza (Planning)
M. Chandra Shekar (City Treasury)
Barbara Bazinet (City Treasury)
Liz Bournes (Health)
Andrea DeMing (Health)
June Hart (Region Finance)

Property Systems
Tuesday, September 10,
9 a.m., Albion Room A
Convention Centre

Noel Cooper (Systems)
Terry Bryce (Systems)
Al Benson (Systems)
Jane Hudspeth (City Architect)
Don Peters (Fire)
John Robinson (Comm. Deveopment)
Joe Pavelka (Transportation)
Eric Pilon (Transportation)
Peter Lampman (Building)
Lou Lanza (Planning)

FUNCTIONAL WORKSHOP ATTENDEES

Human Resources

Louise Hutton (Region Systems)
 Brian Hill (City Treasury)
 Doug Goodman (City Treasury)
 Terry Daw (City Treasury)
 Frank Shimoda (Health)
 Liz Bournes (Health)
 John Thompson (City Clerk)

Operations Management
 Wednesday, September 11
 9:00 a.m., Room D
 14th Floor, Fairclough Bldg.

Noel Cooper (Systems)
 Al Benson (Systems)
 Stan Spencer (Region Engineering)
 John Fitzpatrick (Fire)
 John Avery (Purchasing)
 Russ Ferguson (Social Services)
 Eric Pilon (Transportation)
 Roy Duncan (Transportation)
 Dave King (City Treasury)
 Larry Friday (City Treasury)
 Bob Underhill (City Treasury)

Administrative and Public
 Service Systems
 Thursday, September 12
 9:00 a.m. Boardroom
 6th Floor, Library

Ross Robertson (Systems)
 Noel Cooper (Systems)
 Terry Bryce (Systems)
 Al Benson (Systems)
 Ron Cole (Systems)
 Mario Bernardi (Library)
 Baiba Zommers (Library)
 John Leuser (Hamilton Entertainment)
 Lou Lanza (Planning)
 Max Harris (Region Systems)
 Gordon Merritt (library)
 Stan Hollowell (City Clerk)
 Don Cole (Economic Development)

Community Service Systems
 Friday, September 13
 2:00 p.m. Room E, 13th Floor
 Fairclough Bldg.

Noel Cooper (Systems)
 Terry Bryce (Systems)
 Peter Papp (Social Services)
 Leena Kinanen (Social Services)
 Linda Mooradian (Social Services)
 Russ Ferguson (Social Services)
 Norma Walsh (Social Services)
 Mike Schuster (Social Services)
 Alf Spencer (Social Services)
 Jim Boles (Social Services)
 Jane Underwood (Health)
 Grant Corbett (Health)

FUNCTIONAL WORKSHOP ATTENDEES

Financial Systems

Monday, September 16

2:00 p.m., Committee Room
15th Floor, Fairclough Bldg.

1) Budget

2) General Ledger

A/P, A/R, Payroll

Pensions, Encumbent

3) Revenues, Taxation

Terry Bryce (Systems)

Ron Cole (Systems)

Peter Baker (Library)

Joe Fardell (Transportation)

Reg Joyce (Fire)

Rick Male (Region Finance)

Frances Price (Region Finance)

Stephen Cowell (Region Systems)

Bill Gilchrist (City Treasury)

Roy Hammel (City Treasury)

Nick Adhya (City Treasury)

Richard Seager (City Treasury)

Dave King (City Treasury)

Bob Underhill (City Treasury)

Larry Friday (City Treasury)

Kevin Beattie (City Treasury)

Linda Mooradian

Russ Ferguson (Social Services)

Bill Correwll (Parking Authority)

Tony Tollis (Transportation)

Barb Ashenhurst (Transportation)

Phil Burgess (Region Finance)

Gloria Turner (Library)

Joanne Chechalk (Region Finance)

Systems Development

Tuesday, September 17

9:00 a.m., Boardroom
6th Floor, Library

Al Benson (Systems)

Kozo Kumita (Systems)

Noel Cooper (Systems)

Baiba Zoomers (Library)

Charlie Wilson (Fire)

Klaus Kaesler (Systems)

Ross Robertson (Systems)

Terry Bryce (Systems)

Dave King (City Treasury)

Eric Pilon (Transportation)

Peter MacNeil (Transportation)

Gary Schwoob (Social Services)

Lou Lanza (Planning)

Walter Bramberger (Planning)

Chris Carver (Region Systems)

John Johnston (City Clerk)

Phillis Brown (Library)

Stephen Cowell (Region Systems)

